

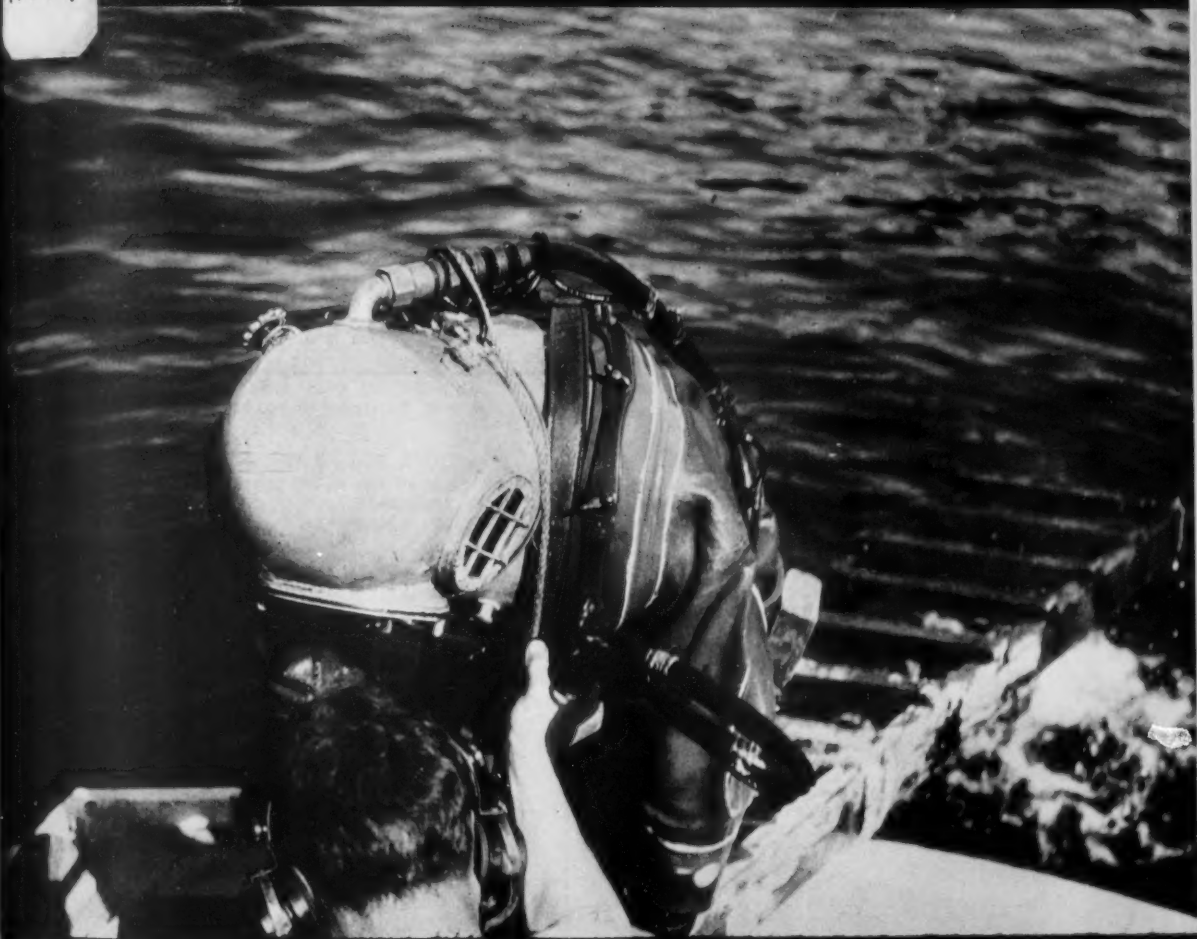
COMMERCIAL FISHERIES REVIEW

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FISH and WILDLIFE SERVICE
United States Department of the Interior
Washington, D.C.



COMMERCIAL FISHERIES REVIEW



A REVIEW OF DEVELOPMENTS AND NEWS OF THE FISHERY INDUSTRIES
PREPARED IN THE BRANCH OF COMMERCIAL FISHERIES

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COMMERCIAL FISHERIES REVIEW

September 1952

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EXPERIMENTS ON THE ESCAPE OF UNDERSIZED HADDOCK THROUGH OTTER TRAWLS

By John R. Clark*

INTRODUCTION

The tremendous waste of small haddock caught by the otter-trawl fleet has been a matter of grave concern to the fishing industry for many years. This waste can be largely eliminated through the use of large-meshed nets. Experiments during the past half century on both sides of the Atlantic have shown that it is possible, by the use of nets with meshes of proper dimensions, to release most fish below a chosen size and to retain most fish above that size. The problem is to choose a size of mesh which will allow most of the small haddock to escape while retaining most of the marketable-size haddock.

At the request of the International Commission for the Northwest Atlantic Fisheries, experiments were conducted by the Woods Hole Laboratory of the Branch of Fishery Biology, U. S. Fish and Wildlife Service, in June 1952 to obtain additional information on certain specific sizes of net mesh. This report presents the results of these experiments.

METHODS

The experiments were conducted on two of the regular trips of the trawler Michigan, one of the large trawlers fishing out of Boston. The vessel fished on Georges Bank in a normal commercial operation, and the fish were sold through the



FIGURE 1--FINE-MESHED SHRIMP NET COVER ATTACHED TO UPPER PART OF COD END BEFORE ATTACHMENT OF BULL HIDES.

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New England Fish Exchange according to the usual practice. On both days that the Michigan landed fish from the experimental cruises, the vessel was "highliner" (landing more than any other vessel) for the day.



FIG. 2 - LARGE CATCHES IN THE COD END (FOREGROUND) AND IN THE COVER (BACKGROUND).

ends. On the first cruise, cod ends of 4-7/8-inch mesh were used. On the second cruise, cod ends were increased to 5-1/2-inch mesh. These measurements are the "as ordered" and computed between knot centers. All nets were obtained from firms that normally supply the Boston fleet. Since greater strength is required for these larger meshes, the cod ends were constructed of 50-yard, four-thread, double manila twine.

A cover of fine-mesh shrimp netting was fitted to the upper side of the cod end in order to capture the small fish which escaped (figs. 1 and 2). The cover extended eight feet beyond the cod end of the trawl and terminated as a small "cover cod end" with its own cod-end line. The fish could not escape through the underside of the cod end because of the bullhide protectors attached there.

For purposes of the International Northwest Atlantic Fisheries Commission, measurements of mesh size are made by inserting a flat wedge-shaped gauge into the

The nets used were standard No. 41 otter trawls, with bellies all of 5-inch (between knot centers) mesh. Experiments were made on two sizes of mesh in the cod

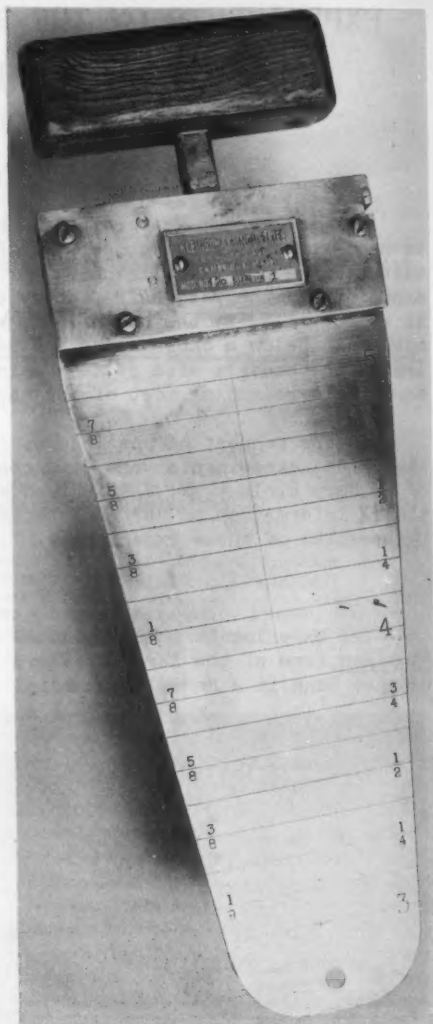


FIG. 3 - THE PRESSURE GAUGE FOR MEASURING THE INSIDE DIMENSIONS OF MESH UNDER A PRESSURE OF 12 POUNDS. A PRESSURE OF 12 POUNDS BRINGS THE NOTCH IN THE INDICATOR TO THE NOTCH IN THE PLATE.

mesh of a wet used net under a pressure of 12 pounds. A special gauge for this purpose, illustrated in figure 3, was constructed. The gauge has an indicator for a pressure of 12 pounds. Inside measurements made in this way are, of course, lower than the between-knots measurements which are normally used in ordering nets from manu-



FIG. 4 - COMPARISON OF CATCHES FROM THE COD END AND FROM THE COVER. FISH IN CHECKER TO THE LEFT WERE RETAINED BY THE 4-1/8-INCH MESH (INSIDE MEASUREMENT). FISH IN CHECKER TO RIGHT PASSED THROUGH MESHES OF COD END AND WERE CAUGHT IN THE COVER.

facturers. The experimental nets were measured before use and periodically throughout the experiments with the pressure gauge in order to record any changes taking place as the result of use. Measurements were made all along the cod end from fore to aft. All measurements of used nets were made when the nets were thoroughly wet.

All haddock from the cod end and from the cover were counted and measured except in cases of very large catches, when only a representative sample was taken and the total computed on the basis of this sample. The two catches were kept separate by emptying the cod end first while the cover was still hanging over-side. Then the cover was hoisted aboard and emptied onto another part of the deck. The two catches were kept apart until counted and measured (fig. 4, 5 and 6).



FIG. 5 - MEASURING HADDOCK AT SEA ON THE MICHIGAN.

It was necessary at the beginning of the experiments to determine whether the cover was having any effect on the selectivity of the cod end, either by impeding the flow of water through the net or by interfering with the escape of fish through



FIG. 6 - A LARGE CATCH OF UNDERSIZED FISH IN THE COVER. THESE FISH PASSED THROUGH THE MESHES OF THE COD END.

the large mesh by obstructing it in some way. For this purpose an uncovered net was used alternately with the covered net for a number of tows, and the catches of the two compared.

RESULTS

EFFECT OF NET USE ON MESH SIZE: When a new net is immersed in water, the meshes are reduced in size due to the shrinkage of the fibers of the twine. If

Table 1 - Sizes (Inside Measurements) of Mesh in a 4-7/8-Inch (Between Knot Centers) Cod End Before and After Use

Table 1 - Sizes (Inside Measurements) of Mesh in a 4-7/8-Inch (Between Knot Centers) Cod End Before and After Use					
When Measured	Part of Cod End Measured				Approximate Average For Entire Cod End
	Q u a r t e r				
	1st (aft)	2nd	3rd	4th (fore)	
	(I n c h e s)				
New, dry	4-5/8	4-5/8	4-5/8	4-3/4	4-5/8
After 3 tows	3-3/4	3-5/8	3-5/8	3-5/8	3-5/8
After 24 tows	3-3/4	3-3/4	3-9/16	3-9/16	3-5/8
After 30 tows	4	3-7/8	3-7/8	3-7/8	3-7/8

the net is then subjected to strain, the meshes may increase in size due to the tightening of the knots. Since the strain may be greater in the aft part of the cod end in which the catch is hoisted, more stretching may occur there than in the fore part. Table 1 presents the measurements of one of the 4-7/8-inch (between knot centers) cod ends before use and at intervals during the trip. Measurements were taken at random within the four quarters running lengthwise of the cod end, on the upper side only.

It can be seen that the meshes shrunk considerably at first, then remained relatively constant, and finally stretched a little after the last few tows. In the first tow 3,000 pounds of fish were taken, causing the knots to tighten and

Table 2 - Sizes (Inside Measurements) of Mesh in a 5½-Inch (Between Knot Centers) Cod End Before and After Use

When Measured	Part of Cod End Measured				Approximate Average For Entire Cod End
	1st (aft)	2nd	3rd	4th (fore)	
	(I n c h e s)				
New, dry	5-1/8	5-1/8	5-1/4	5-1/8	5-1/8
After 3 tows	4-1/4	4-1/8	3-7/8	3-7/8	4
After 16 tows	4-7/16	4-1/4	4	3-13/16	4-1/8
After 25 tows	4-7/16	4-1/4	3-15/16	3-15/16	4-1/8
After 28 tows	4-1/2	4-3/16	3-15/16	3-7/8	4-1/8

the meshes to stretch almost to the maximum attained during the trip. During the next 27 tows the heaviest catch was 2,800 pounds. This was not sufficient to cause much additional stretching. Then, on tow 29, 5,000 pounds were taken and the meshes stretched an additional quarter of an inch. As expected, the meshes in the aft part of the cod end stretched more than those near the belly.

In table 2 are the measurements for one of the 5-1/2-inch (between knot centers) cod ends used on the second cruise. The usual initial shrinkage occurred and then there was appreciable stretching only in the aft part. The heaviest catch (3,100 pounds) was taken on tow 11, after which the mesh sizes changed but little. At the completion of the trip, the meshes in the aft part of the cod end were 5/8-inch greater than were those in the fore end.

The meshes in the bellies of the nets which were purchased as 5-inch (between knot centers) averaged 4-1/2 inches as measured with the gauge when wet after use. There was no material change in

Table 3 - Selectivity of the 3¼-Inch (Inside Measurements) Cod End

Gutted Weight	Length ^{1/}	Fish in Cover	Fish in Cod End	Total Caught	Percentage Retained in Cod End
Pounds	Cm.	No.	No.	No.	%
.2	21	14	5	19	26.3
.3	24	74	8	82	9.8
.4	27	102	22	144	17.7
.5	30	276	149	425	37.9
.7	33	388	755	1,143	66.1
.9	36	177	1,377	1,554	88.6
1.2	39	22	1,391	1,413	98.4
1.4	42	-	969	969	100.0
1.7	45	-	661	661	100.0
2.1	48	-	418	418	100.0
2.5	51	-	270	270	100.0
2.9	54	-	90	90	100.0
3.4	57	-	38	38	100.0
3.9	60	-	22	22	100.0
4.5	63	-	12	12	100.0
5.1	66	-	5	5	100.0
5.8	69	-	3	3	100.0
Totals	1,053	6,195	7,268	

^{1/}SIZE GROUPS BY 3 CM. INTERVALS. DUE TO THE METHOD OF RECORDING LENGTHS TO LOWER FULL CM. (E.G., ALL LENGTHS FROM 21.0 CMS. TO 21.9 CMS. ARE RECORDED AS 21 CMS.), AN ADJUSTMENT OF 0.5 CM. MUST BE MADE TO EACH LISTED GROUP LENGTH TO OBTAIN THE TRUE MIDPOINT OF THE GROUP.

size during use. The netting of the bellies is constructed of single twine so that there is a different relationship between the two types of measurements. In the cod ends with double twine, a 5-inch (between knot centers) mesh would have an internal dimension much less than 4-1/2 inches.

EFFECT OF COVER: Analysis of the results of the paired tows showed that the cover did not hinder the escape of small haddock from the cod end. Had the cover interfered, we would expect to find more small fish in the covered cod end. The greater number of small fish would, of course, lower the average size of haddock in the covered cod end as compared with the uncovered one. The average length of fish in seven pairs of tows in which the meshes averaged 3-3/4 inches (inside measurement) however, was exactly the same (40.7 cm.) in both the covered and uncovered cod ends. In 5 pairs of tows with the 4-1/8-inch (inside measurement) mesh the average length of haddock from the covered net was actually a little higher (42.7 cm.) than from the uncovered net (41.6 cm.). It can be stated with confidence, therefore, that under the prevailing conditions, the cover did not hinder the escape of small fish from the cod end. This has been verified by a detailed statistical analysis which will be reported elsewhere.

Table 4 - Selectivity of the 4-1/8-Inch (Inside Measurements) Cod End					
Gutted Weight Pounds	Length ^{1/} Cm.	Fish in Cover No.	Fish in Cod End No.	Total Caught No.	Percentage Retained in Cod End %
.1	18	1	-	1	0.0
.2	21	13	4	17	23.5
.3	24	17	-	17	0.0
.4	27	47	4	51	7.8
.5	30	192	39	231	16.9
.7	33	313	206	519	39.7
.9	36	349	486	835	58.2
1.2	39	211	785	996	78.8
1.4	42	39	627	666	94.1
1.7	45	6	454	460	98.7
2.1	48	2	325	327	99.4
2.5	51	-	154	154	100.0
2.9	54	-	69	69	100.0
3.4	57	-	28	28	100.0
3.9	60	-	11	11	100.0
4.5	63	-	2	2	100.0
Totals		1,190	3,194	4,384	
^{1/} SIZE GROUPS BY 3 CM. INTERVALS. DUE TO THE METHOD OF RECORDING LENGTHS TO LOWER FULL CM. (E.G., ALL LENGTHS FROM 21.0 CMS. TO 21.9 CMS. ARE RECORDED AS 21 CMS.), AN ADJUSTMENT OF 0.5 CM. MUST BE MADE TO EACH LISTED GROUP LENGTH TO OBTAIN THE TRUE MIDPOINT OF THE GROUP.					

ESCAPE OF FISH THROUGH THE MESH: In a series of 5 tows with the 4-7/8-inch (between knot centers) cod end during which the size of mesh held close to 3-3/4 inches (inside measurement), a total of 7,268 haddock were taken; 6,195 of these were retained in the cod end while 1,053 escaped to be caught in the cover. The numbers of haddock of various sizes taken in the cod end and in the cover, as well as the percentages of these sizes which were retained in the cod end, are given in table 3. It will be noted that practically all fish weighing less than 0.4 pound escaped and that practically all fish weighing more than one pound were retained by this mesh which averaged 3-3/4 inches (inside measurement).

The selectivity of meshes is defined by the 50-percent selection point. This is expressed as the size of fish of which 50 percent are retained and 50 percent released by the net. For this net with 3-3/4-inch (inside measurement) mesh the 50-percent selection point was 32 cm. (12.6 inches). Haddock of this length weigh about 3/4 pound.

The results of the experiment with the 5-1/2-inch (between knot centers) mesh are given in table 4. In a series of eight tows with this cod end during which the meshes averaged 4-1/8 inches (inside measurement), 4,384 haddock were taken, of

which 3,194 were retained and 1,190 escaped through the meshes of the cod end and were caught in the cover. In this case, most fish weighing less than 0.6 pounds escaped, while practically all fish weighing more than 1.3 pounds were retained. The 50-percent selection point for this net of 4-1/8-inch (inside measurement) mesh was 35.5 cm. (14 inches). Haddock of this length weigh about one pound.

SUMMARY

1. The shrinkage and stretching in use of two sizes of mesh in cod ends of otter trawls was measured.
2. A well fitted fine mesh cover on the cod end does not interfere with the escapement of small fish, so that covered nets can be used for determining the selectivity of meshes.
3. The selectivity of two sizes of mesh was measured. The use of a net with meshes larger than the larger one used in these experiments (4-1/8 inches, inside measurement) would result in saving most of the haddock now discarded, and at the same time would retain most of the fish now caught and landed.

ACKNOWLEDGMENT

We are grateful for the cooperation received from the fishing industry, without which these experiments could not have been carried out; to Mr. Ben Larson for the use of the trawler Michigan and to Captain Rudolph Greene and the entire crew of that vessel for their enthusiastic cooperation. Captain Westerbeke of the Westerbeke Fishing Gear Company, Inc., of Boston cooperated in the design and preparation of the special gear used in the experiments.

The following biologists assisted in the project: Sterling L. Cogswell, Robert L. Cory, Robert G. Kirkpatrick, Robert R. Marak, Craig Slater, and Robert S. Wolf.



U. S. CANNED FISHERY PRODUCTS PRODUCTION

DO YOU KNOW THAT

California led in the production of canned fishery products with a pack of 388,296,199 pounds, valued at \$122,572,382. Alaska was second with 168,439,139 pounds, valued at \$80,748,052. These areas accounted for 70 percent of the 1951 United States and Alaska pack of fishery products and 68 percent of its value.



Canned Fish & Byproducts--1951, C.F.S. No. 772

PRELIMINARY INVESTIGATION OF THE SOUTHEASTERN ALASKA ABALONE (Haliotis kamtschatkana)

PART I - EXPLORATORY DIVING

By Robert Livingstone, Jr.*

INTRODUCTION

For many years residents of southeastern Alaska have gathered sufficient abalone from the rocky shores of Prince of Wales and Baranof Islands for home consumption. In 1947, Dr. G. Dallas Hanna of the California Academy of Sciences, while making a species study, reported incidentally that abalone occur in considerable numbers along the shores of the outer islands.^{1/} Fairly extensive beds of abalone are also found in northern British Columbia along the rocky shores bordering the open ocean on the west coast of the Queen Charlotte Islands (Quayle 1940). All evidence at hand suggested that abalone were available along the west coast of Prince of Wales and Baranof Islands and that this region held promise for exploration. These reports, however, did not furnish sufficient information to establish definitely whether a commercial fishery is actually possible. In view of the need for off-season fisheries in southeastern Alaska, a survey was made by the U. S. Fish and Wildlife Service to determine if abalone existed in commercial quantities.

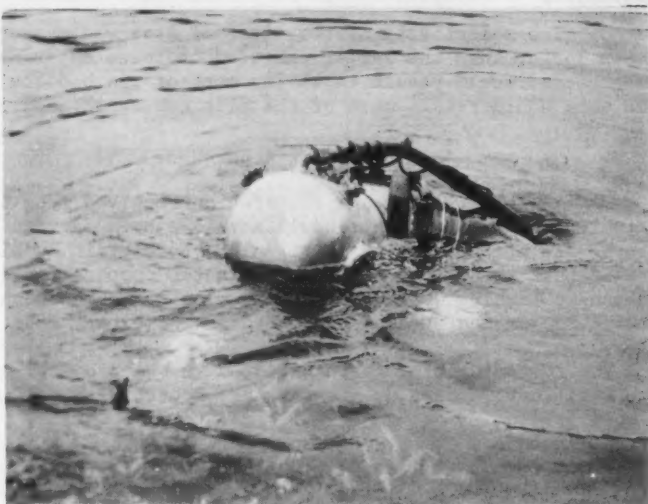


FIG. 1 - DIVER SEARCHING BOTTOM FOR ABALONE IN SHALLOW WATER.

For the explorations, a professional Alaska salmon-trap diver was employed, together with his 38-foot boat. The diving was carried on from September 15 to October 10, 1951. The work was confined to the waters of the west coast of Prince of Wales Island and the vicinity of Craig, Alaska (see fig. 2).

EQUIPMENT

The diving tender used on the survey was the 38-foot cruiser-type Lady Bess (see fig. 3), with a beam of 9 feet, draft of 4 feet,^{2/} and sleeping accommodations

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1/ DR. HANNA'S OBSERVATIONS WERE BASED ON LOW-TIDE COLLECTIONS, RECONNAISSANCE OF THE SUB-LITTORAL ZONE WITH A SKIFF AND AN UNDERWATER VIEWER, AND SURVEYS OF THE SHORES. [IN ADDITION, HE EMPLOYED A SALMON-TRAP DIVER TO MAKE SEVERAL DIVES IN SELECTED LOCATIONS. (UNPUBLISHED MATERIAL GENEROUSLY FURNISHED THE WRITER BY DR. HANNA.)]

2/ SHALLOW DRAFT IS ESSENTIAL TO WORK THE ROCKY SHORE AREAS INHABITED BY THE ALASKA ABALONE.

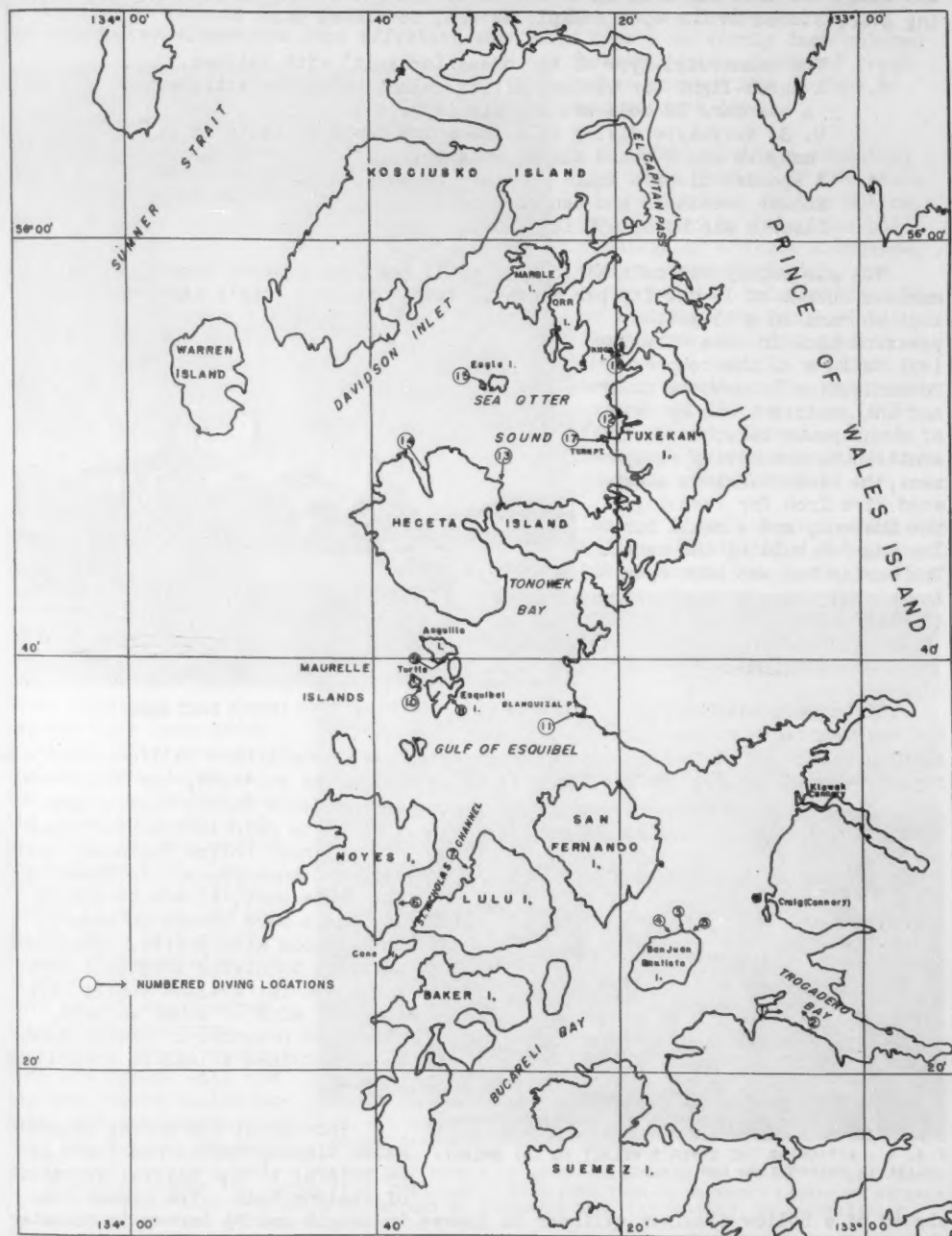


FIG. 2 - SECTION OF WEST COAST OF PRINCE OF WALES ISLAND EXPLORED FOR ABALONE.

for six. The crew was made up of the diver and his attendant (see fig 4). Diving gear, stored in the open cockpit astern, consisted of:

- The commercial-type of tan dress (or suit) with patches.
- A three-light (or window) diving helmet which was attached to a standard 12-bolt breastplate (fig. 4).
- U. S. Navy-type diving belt, to which could be fastened as many as ten 8-pound diving weights.
- A special diver's knife for cutting kelp, etc.
- Rubber overshoes and canvas gloves.
- Diver's air hose, 250 feet long.

The air supply was maintained by a small gasoline-powered compressor with a maximum output of 19 cu. ft. per minute. About one-half hour's air supply was kept on hand in a 15-gallon pressure tank in case of mechanical failure of the compressor. Communication between the diver and the assistant was by means of sound-power telephone. In addition to the diving equipment, the diver carried a sharpened tire iron for removing the abalone, and a small burlap bag for holding the catch. The burlap bag was kept open in an oval shape by a piece of stiff wire.

PROCEDURE

Diving was selected as the most suitable exploratory fishing method since it has proven successful in the established California abalone fishery (Bonnot 1948). Before the area to be worked was selected, the U. S. Coast and Geodetic Survey charts were studied to gain information about shore lines, bottom features, shelter, and anchorages. In planning the day's work, alternate diving locations were chosen in case of unfavorable wind shifts. The shores adjacent to diving locations were inspected for abalone shells left there by mink or other animals, since the presence of shells sometimes provided a lead to the abalone beds.^{3/}



FIG. 4 - ATTACHING THE DIVER'S HELMET TO THE BREAST-PLATE IN PREPARATION FOR DIVING.

sisted of a hollow aluminum cylinder 24 inches in length and 7½ inches in diameter with handles on one end and a pane of glass sealed into the other. Use of the viewer gave a satisfactory examination of the bottom unaffected by surface disturbances (see fig. 6). This provided an idea of abalone density, the extent and type

^{3/} THIS METHOD HAD BEEN FOLLOWED BY DR. HANNA AND OFFERS CLUES AS TO THE WHEREABOUTS OF THE ABALONE CONCENTRATIONS.



FIG. 3 - THE 38-FOOT DIVING TENDER LADY BESS.

Throughout the survey an underwater viewing device was found to be helpful in the initial appraisal of abalone beds. The viewer con-

of bottom, and the nature of kelp growths. On sunny days the bottom could be seen to depths approaching 30 feet unless suspended matter made viewing difficult. The underwater viewer was less effective when used over a uniformly dark-colored

bottom, when a layer of fresh water covered the surface,^{4/} and on dark days.



FIG. 5 - DIVER BEING HELPED OVER THE SIDE BY ATTENDANT.

After taking a sounding, the diver jumped off the stern of the tender. On the bottom, he reported by telephone his findings of abalone abundance, bottom characteristics, and other related information. If no abalone were found within a short time, a longer period on the bottom usually produced no better results. The diver made use of all the air hose (250 feet) at each location unless hampered by an irregular bottom or kelp entanglements.

Removal of an abalone from its attached position on a rock was not difficult. Ordinarily, the diver merely slid or twisted the abalone off with his gloved hand. This method worked particularly well on a boulder bottom where the diver, working

in a semi-prone position, could use his hands to pull himself along. Occasionally, when an abalone stuck tightly, the diver removed it by sliding the tire iron under its foot. The catches of abalone were placed in the small burlap bag which the diver wore slung at his front or side.^{5/} When the bag was full, the diver called his assistant by telephone, and the author went in a skiff to the spot marked by the diver's bubbles. Here a wire basket was lowered into which the diver placed the bag of abalone. Then the basket with the bag was raised to the surface, the contents emptied into the basket, the empty



FIG. 6 - LOOKING FOR ABALONE WITH UNDERWATER VIEWING DEVICE BEFORE DIVING NEAR NOYES ISLAND.

^{4/} THE DIVER MENTIONED THAT IN SALMON-TRAP WORK A LAYER OF FRESH WATER ON TOP OF THE SALT WATER WILL OFTEN CHANGE THE INTENSITY OF THE LIGHT. THIS CONDITION IS PROBABLY CAUSED BY REFRACTION OF LIGHT RAYS UPON ENTERING MEDIUMS OF DIFFERENT DENSITY; HOWEVER, NO QUANTITATIVE MEASUREMENTS WERE MADE TO DETERMINE THE CAUSE.

^{5/} CALIFORNIA ABALONE DIVERS CARRY A NET BAG WHICH HOLDS ABOUT TWO DOZEN ABALONE. WHEN THE BAG IS FULL, THE DIVER SIGNALS HIS ATTENDANT WHO CLIPS AN EMPTY BAG TO THE DIVER'S LIFE LINE. THE DIVER THEN PULLS THE EMPTY BAG DOWN AND FASTENS THE BAG HOLDING THE ABALONE TO THE LIFE LINE WHICH IS HAULED UP TO THE TENDER BY THE ASSISTANT. (BONNOT 1948)

bag re-lowered to the diver, and the skiff rowed back to the diving tender. Finally, the abalone were weighed, measured, placed in burlap sacks, and lowered over the side of the tender until fully submerged.

RESULTS AND OBSERVATIONS

During the survey 17 dives were made, and the results from each dive are presented in table 1. The length of time spent on the bottom ranged from 17 minutes



FIG. 7 AN AREA OF ACTIVE WATER CIRCULATION. DIVE NUMBER 7 OFF LULU ISLAND.

to 2 hours and 28 minutes, with an average time of 52 minutes. The diver operated in depths from zero feet to approximately 80 feet. A total of 612 abalone were taken by diving, and the gross weight in the shell was 177.7 pounds.

weighed 69.4 pounds in the shell and averaged 5.5 ounces each. This dive, lasting 2 hours and 28 minutes, was made approximately $\frac{1}{2}$ -mile southward of Point Marabilla on the western shore of Lulu Island in St. Nicholas Channel (see fig. 2). The main part of this abalone concentration was confined to a zone of boulders in 9 to 23 feet of water and generally shoreward of the holdfasts of kelp. This finding is consistent with reports by Japanese fishermen that the abalone beds in northern British Columbia extend out as far as the kelp line (Thompson 1914).

Another fairly good bed of abalone was discovered on the west shore of Blanquital Point on Prince of Wales Island, where a 65-minute dive (No. 11) produced 154 abalone which weighed 41.4 pounds in the shell and averaged 4.3 ounces each. Dives from areas other than those mentioned produced smaller or insignificant catches (see table 1).

DEPTH OF ABALONE

Abalone were commonly found in the rocky shoal areas which are partially exposed on the minus tides of spring

- 5/ DEPTHS GIVEN IN THIS REPORT ARE BASED ON ONE ACTUAL SOUNDING AT THE TIME OF THE DIVE. APPROXIMATE TIDAL STAGE AT THE TIME OF EACH SOUNDING IS SHOWN IN TABLE 1.
- 7/ EXTENSIVE BEDS OF LIVE BULL KELP *NEREOCYSTIS LUETKEANA* WERE NOTED IN ST. NICHOLAS CHANNEL AND IN THE SHOAL AREAS BETWEEN HECETA AND TUXEKAN ISLANDS.

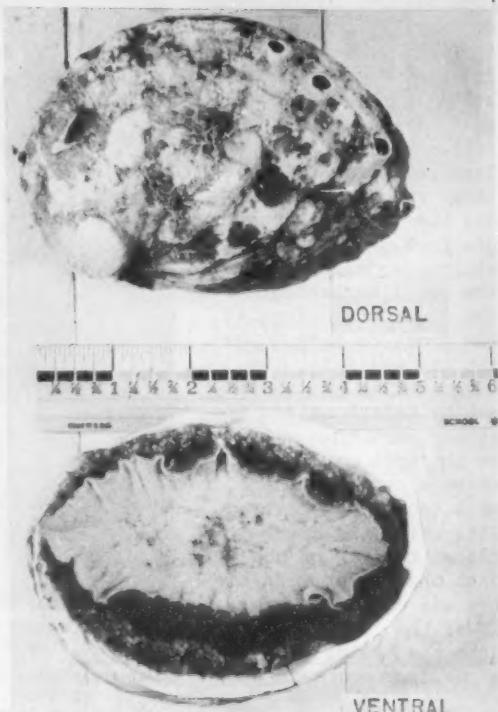


FIG. 8 - DORSAL AND VENTRAL VIEWS OF ALASKA ABALONE (RULER GRADUATED IN INCHES).

The most productive dive (No. 7) produced 202 abalone which,

Table 1.-Alaska Abalone Diving Record

Date	Location	Latitude N.	Longitude W.	Dive	Time on bottom	Depth* of tide	Abalone				Remarks
							No.	Total wt. (in shell)	Avg. length (in shell)	Avg. wt. (in shell)	
					Min.	Feet		Lbs.	In.	Oz.	
9-17-51	Trocaadero Bay	55°23'04"	133°07'08"	1	50	20	13	3.6	3.6	4.7	Abalone scattered. Boulder and sand bottom with sharp drop-off at 30 feet. Small amount of surge.
9-17-51	Trocaadero Bay	55°23'00"	133°05'28"	2	45	40	0	-	-	-	One 4 3/4-pound rock scallop found on base of cliff. Mud and sand bottom. Patchy with eelgrass. Water turbid.
9-19-51	San Juan Bautista Island	55°27'08"	133°15'09"	3	17	45	0	-	-	-	Many clam shells and starfish. Generally sandy bottom with few scattered small boulders. Broadleaf kelp patchy.
9-19-51	San Juan Bautista Island	55°27'02"	133°15'11"	4	33	42	3	.8	4.0	4.4	Good showing of shells in edge of woods. Sandy bottom with rock ledge, eelgrass. Area easy to work.
9-20-51	San Juan Bautista Island	55°27'00"	133°14'38"	5	30	20	5	2.7	4.7	8.6	Abalone on small boulder ledge. Sandy bottom in deeper water. Area easy to work except for few kelp entanglements.
9-21-51	Moyes Island	55°28'13"	133°33'16"	6	105	18	92	23.6	3.7	4.1	Fair quantity of abalone on band of boulders in shallow water. Many sea urchins. Broadleaf kelp and numerous mold-fasts of bull kelp.
9-22-51	Lulu Island	55°29'58"	133°32'30"	7	148	23	202	69.4	4.0	5.5	Good showing of abalone on ledge of boulders. Many sea urchins. Slight tidal surge in shallow depths. Good visibility. Patches of broadleaf kelp on bottom.
9-24-51	Esquibel Island	55°30'08"	133°33'47"	8	46	12	28	9.1	3.9	5.2	Abalone scattered. Few sea urchins, numerous starfish. Rocky ledge with sand and scattered boulders. Easy to work.
9-24-51	Anguilla Island	55°40'00"	133°34'10"	9	38	26	0	-	-	-	No shells in woods. Rock ledge with abrupt drop-off. Eelgrass in cove. Fresh water seepage running into cove. No surge here.
9-25-51	Turtle Island	55°38'45"	133°36'07"	10	34	16	42	8.4	3.3	3.2	Abalone scattered on boulder ledge in center of cove. Numerous sea urchins. Patches of eelgrass and broadleaf kelp. Slight swell.
9-25-51	Prince of Wales Island	55°37'22"	133°23'43"	11	65	12	154	41.4	3.7	4.3	Abalone scattered. Eleven shells found in edge of woods. Boulder bottom. Numerous sea urchins.
9-28-51	Tuxekan Island	55°50'40"	133°20'35"	12	43	26	11	3.4	4.0	5.0	Few sea urchins. Limestone ledge with conglomerate. Broadleaf kelp in patches. Area quite sheltered.
9-29-51	Heceta Island	55°48'40"	133°29'40"	13	30	25	0	-	-	-	No shells in edge of woods. Bad entanglement of kelp slowed diver's progress. Area sheltered.
9-29-51	Heceta Island	55°49'18"	133°35'42"	14	28	20	0	-	-	-	No sea urchins. Limestone ledge with few boulders. Bad surge in shallow depths.
9-30-51	Island westward of Eagle Island	55°53'15"	133°31'05"	15	73	24	37	7.6	3.3	3.3	Numerous sea urchins. Shells in edge of woods. Scattered boulders, white sand and gravel. Considerable surge in around 9 feet of water.
10-4-51	Knob Island	55°54'38"	133°19'55"	16	35	22	0	-	-	-	No sea urchins. Suspended matter made viewing difficult. Area sheltered.
10-7-51	Tuxekan Island	55°50'38"	133°21'33"	17	35	14	25	7.5	3.9	4.8	Many sea urchins. Extensive boulder ledge with sand in deeper water. Surge in whole area.
Totals or Over-all averages					14 hrs. 54 min.		612	177.7	3.8	4.6	

* BASED ON ONE ACTUAL SOUNDING AT TIME OF DIVE.

and summer. In British Columbia, the abalone are found from the zero-foot level down to a depth of several fathoms (Quayle 1940). A Ketchikan salmon-trap diver, who made several dives for Dr. Hanna in 1947, claimed that he had gathered abalone as deep as 6 fathoms and had seen them as far down as 15 fathoms.

TYPE OF BOTTOM

Best concentrations of abalone were found in areas where the bottom was covered with boulders of various sizes interspersed with stretches of clean gravel. The Alaska abalone apparently inhabits more open surfaces than the California species which are reported common in the interstices and on the undersurfaces of rocks (Bonnot 1940). No abalone were encountered where the diver reported bottoms of mud, sand, or shell.

SIZE OF ABALONE

In a sample of 345 shell lengths,^{8/} the size of abalone ranged from 1.9 inches (48 mm.) to 5.0 inches (127 mm.) and averaged 3.8 inches (97 mm.). One shell collected on the shore of San Juan Bautista Island measured 5.2 inches (132 mm.). Whole abalone weights varied from $\frac{1}{2}$ -ounce (14 grams) to 11.5 ounces (326 grams). The average weight of 356 abalone, including the shell, was 4.6 ounces (130 grams). It is pointed out for comparison that California abalone divers must abide by a law that sets a minimum size of 6, 7 $\frac{1}{4}$, and 8 inches, respectively, for the pink or black, green, and red abalones. (Bonnot 1948)

A comparison of the Alaska and the California abalones, if based on shell measurements, is apt to be misleading. Table 2 shows that 12 Alaska abalone hav-

No.	Type	Size	Total weight	Weight of Foot Muscle
		In.	Lbs.	Lbs.
12	Alaska abalone	3.0	1.5	.62/
"	" "	3.5	2.7	1.12/
"	" "	4.0	4.1	1.72/
"	" "	4.5	5.2	2.22/
"	" "	5.0	8.0	3.42/
"	California abalone	6.5	26.7	11.8
"	" "	7.0	31.1	12.7
"	" "	7.5	33.4	13.6
"	" "	8.0	35.6	14.5
"	" "	8.5	37.8	15.4
"	" "	9.0	40.0	16.3

1/ BOTH SEXES INCLUDED. CALIFORNIA DATA FROM BONNOT (1948).
 2/ WEIGHT CALCULATED BY APPLYING 42 PERCENT RECOVERY RATE TO GROSS WEIGHT.

ing 5-inch shell measurements had a gross weight of 8 pounds, while an equal number of California abalone having 6 $\frac{1}{2}$ -inch shell measurements had a gross weight of 26.7 pounds. The Alaska abalone, which had shell measurements 23 percent less than the California abalone, possessed a gross weight 70 percent less than the California sample. This disparity in weight is also reflected in the yield of the two varieties. Whereas the twelve 5-inch Alaska abalone yielded a foot-muscle weight of 3.4 pounds, the twelve 6 $\frac{1}{2}$ -inch California abalone yielded 11.8 pounds. No data are available to provide direct comparisons of gross weights and recoveries

from Alaska and California abalones of equal shell measurements. It would appear, however, that the Alaska abalone possess a markedly lower gross weight and recovery weight in proportion to shell measurement than do the California abalone.

DISCUSSION AND CONCLUSIONS

In the area covered, diving did not locate sufficient quantities of abalone to warrant their commercial exploitation. It is possible that greater numbers of

^{8/} ABALONE WERE MEASURED THROUGH THE LONGEST DIAMETER OF THE SHELL WITH A SLIDING CALLIPER-TYPE MEASURER GRADUATED IN MILLIMETERS.

abalone occur along the seaward sides of the outer islands in this region; however, weather conditions would frequently make abalone diving in these areas hazardous or impossible. Even in California, abalone divers average only about 12 working days a month (Bonnot 1948).

When the underwater viewer could be used near the time of low water, better catches usually resulted because first-hand knowledge of the area was obtained prior to diving. At dive locations Nos. 6, 7, 11, and 17,^{9/} the underwater viewer could be used to ascertain bottom conditions before the dive was begun. Diving stations worked at higher stages of the tide made the use of the viewer less effective.

The denser abalone beds were found in the inside passages close to the ocean or in areas where either surge or tidal currents provided a constant exchange of water. Abalone were commonly found in and near colonies of sea urchins. One of the Laminarian algae (referred to in table 1 as broadleaf kelp) often carpeted the bottom, and some abalone were found adhering to this kelp. Areas in which the diver reported an unusual abundance of starfish yielded few abalone. There is evidence from California that the smaller abalone are sometimes preyed on by starfish (MacGinitie and MacGinitie 1949).

A number of conditions that made diving difficult in this region should be noted. The very irregular bottom encountered in shoal areas made it difficult to find sufficient swinging room for the diving tender while at anchor. Kelp entanglements often slowed the diver's progress because he either had to cut the kelp or crawl through it, running the risk of fouling his air line. Bottom surge disturbed the diver, but in most locations this was not serious. Strong tidal currents caused excessive strain on the air hose making it harder to pull slack.

SUMMARY

A diving exploration for abalone was made from September 15 to October 10, 1951, in southeastern Alaska off the central west coast of Prince of Wales Island to determine the availability and abundance of abalone for commercial use.

The waters off the west coast of Prince of Wales Island were selected for exploration because available information indicated that commercial quantities of abalone might be found in this region. A commercial salmon-trap diver and his 38-foot boat were employed. Seventeen dives were made at various locations, usually where there was protection from the weather. No dives were made in waters off the exposed ocean beaches, but weather conditions much of the year would make diving for abalone in these areas hazardous or impossible.

Commercial quantities of abalone were not found in the areas investigated. Abalone beds were found in areas where the bottom was covered with boulders that would be partly exposed on the minus tides. The best concentrations of abalone were in areas having active water circulation and extensive kelp beds.

The size of individual abalone was small, averaging 3.8 inches in length and 4.6 ounces in weight. The average weight of the foot muscle was 1.8 ounces. The gross weight and the recovery weight of the Alaska abalone in proportion to shell size appears to be much smaller than for the California abalone.

^{9/} THIS DIVE WAS NECESSARILY HALTED BECAUSE OF WEATHER CONDITIONS. THE DIVER'S CATCH OF 25 ABALONE IS NOT BELIEVED TO BE REPRESENTATIVE OF THE NUMBER OF ABALONE SEEN PRIOR TO THIS DIVE.

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PART II - TECHNOLOGICAL STUDIES ON HANDLING ABOARD SHIP AND PREPARATION ASHORE, AND ACCEPTABILITY OF THE COOKED PRODUCTS

By C. J. Carlson* and J. A. Dassow**

INTRODUCTION

In conjunction with the experimental diving and beach survey work (Part 1), very preliminary studies were carried out on the handling of the abalone aboard ship, methods of preparation ashore, and general acceptability of the cooked products. These data are necessary to provide information on the practicability of abalone fishing operations and marketing.

HANDLING ABOARD SHIP

The limited diving operations and survey of the beaches (Part 1) indicated that daily deliveries of abalone from the fishing grounds to the processor were not feasible. Therefore, in order to permit utilization of any abalone resource, practical methods of handling aboard ship must be developed to insure delivery of good-quality abalone to the processor or marketing center. The conditions involved during the fishing operations and the distance of the fishing grounds from processing centers seemed to indicate that proper methods for handling abalone would involve holding and delivery in the live state.

Since the primary purpose of the abalone investigation concerned the diving operations and the survey of fishing grounds, it was not possible to fully investigate the various methods of handling live abalone. Tests were carried out, however, on holding the live abalone in burlap bags. These bags, containing the live abalone, were suspended from the sides of the boat in the sea water during the fishing operations. Whenever the boat was under way, the sacks were placed on deck and kept moist with sea water.

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One test was carried out using three bags of abalone: the first bag contained 4 pounds of live abalone; the second, 13 pounds; and the third 40 pounds. (The bags when full hold about 50 pounds of whole abalone.) Under the conditions indicated, the abalone in the bags containing 4 and 13 pounds of shellfish remained alive for 5 days but were inactive at the end of this period. This applied only to the uninjured abalone; those with a cracked or broken shell or with torn muscle died rapidly and lasted only up to 2 days. Most of the abalone in the largest bag, containing 40 pounds, were dead after 2 days except for the top layers. Those in the top layers lasted about 5 days. The lower layers of abalone apparently died of suffocation. Because of the non-rigid construction of the bags, the abalone packed into a compact mass, and only the top layers of shellfish were able to get enough sea water circulation for survival. It is possible that a rigid slatted box container would prove more feasible for holding the live abalone.

PREPARATION ASHORE

Fresh samples of the abalone collected during the diving operations were shipped alive in burlap bags by airplane to the Ketchikan Fishery Products Laboratory for preparation and cooking tests. The burlap bags and contents were held in sea water during the fishing operations and prior to loading aboard the airplane.

At the laboratory, the contents of the shells were removed by use of a stiff-bladed knife. The viscera were stripped from the muscle portion, which was then

ready for trimming and cleaning. Data on sizes and component parts of the abalone are shown in table. The muscle represented about an average of 42 percent of the weight of the whole abalone. The amount of trimmed edible meat obtained was about 35 percent of the weight of the whole abalone.

Sizes and Weights of Component Parts of the Alaska Abalone						
Location of Fishing Grounds	Number of Abalone	Size Range	Average Weight of Muscle	Component Parts in Percent of the Whole Abalone		
				Muscle	Viscera	Shell
Kelly Cove	48	2.0-4.8	1.9	45	30	25
Lulu Island	64	2.2-5.2	1.9	39	32	29
Blanquiza Point	117	2.2-5.0	1.7	42	30	28
NOTE: SAMPLES WERE OBTAINED FROM THREE FISHING GROUNDS OFF THE WEST COAST OF PRINCE OF WALES ISLAND, ALASKA.						

Samples of the whole muscles were soaked in each of several dilute solutions of (1) baking soda, (2) salt, and (3) vinegar, and in fresh water in order to find an easy method of removing the black pigment from the edges of the meats. The common practice of the homemaker in Alaska is to soak the abalone meats in fresh water. No improvement was noted over this method by the use of dilute solutions of baking soda, salt, or vinegar.

The cleaned and trimmed abalone meats were tenderized by pounding and were further dressed for the preparation of cooked dishes. Difficulty was encountered in cutting some meats into steaks because the foot of the abalone had apparently assumed the contour of the object to which it had been fastened. In California a method (Bonnot 1948) is used whereby the cleaned and trimmed muscle is allowed to relax on a smooth wet surface before the steaks are cut. It is entirely possible that this procedure might also work for the Alaska abalone.

COOKING TESTS

Cooking tests with the trimmed abalone meats showed them to be quite acceptable when prepared as chowder, fried steaks, or fritters. The laboratory taste

panel showed a slight preference for the fried steaks. In general, the meats were very tender and mild in flavor. However, the meats were small in size and presented a ragged appearance. The raggedness was caused by the pounding of the raw meats necessary to make them tender. Perhaps improved methods of pounding or tenderizing the meats would eliminate this problem.

SUMMARY

Alaska abalone were held alive up to 5 days in burlap bags containing about 13 pounds of the whole shellfish (total capacity of bag was 50 pounds) when placed in sea water while suspended over the side of the fishing vessel.

Abalone with cracked or broken shells did not remain alive longer than two days when held in burlap bags immersed in sea water.

In the preparation of the meats, soaking of the muscles in fresh water aids in removal of the black pigment. Soaking in dilute solutions of baking soda, salt, or vinegar was of no advantage over soaking in water.

The average weight of the meats (whole muscle) was 1.8 ounces or about 42 percent of the weight of the whole abalone.

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PACKAGING FROZEN FISHERY PRODUCTS

The low temperatures which are required for proper storage of frozen fishery products and frozen foods in general will cause extreme desiccation or drying out unless special preventive precautions are taken. The humidity of the air in a frozen-storage room is quite low. On the other hand, the air immediately surrounding the frozen food is practically saturated with moisture. The dry air in circulating through the room will pick up any moisture that is available. Any exposed or improperly packaged food products in the room will thus lose moisture, in the form of water vapor, and will rapidly develop a dry, spongy, and discolored surface. The tissues become tough due to denaturation or irreversible changes in the protein. This condition is known as "freezer burn." The package is of prime importance in order to prevent this drying. Care is needed to package the food properly in containers which have a very low or, ideally, a zero rate of water-vapor transfer, so as to keep the moisture where it belongs—within the package.

--Fishery Leaflet 324



RESEARCH

IN SERVICE LABORATORIES

August 1952

REFRIGERATION: Freezing Shrimp at Sea--Gulf States Area: Shrimp which were brine- and air-frozen in the Gulf of Mexico area for the study of freezing shrimp at sea were analyzed for salt content. Samples included whole and headless shrimp frozen in brine at 5° F. and held for periods up to 48 hours before removal and storage in air at 0° F. Refrozen shrimp were prepared by thawing in water the whole brine-frozen shrimp (frozen in brine at sea), removing the heads, packaging in waxed cartons, and refreezing in air at -20° F.

Results of the salt analyses showed a considerable variation in salt absorption of shrimp in each lot and indicate the desirability for further work to resolve the factors affecting salt absorption in brine-frozen shrimp.

All brine-frozen shrimp tested were frozen and held in sodium chloride brine (85° salometer) at approximately 5° F. The tests indicate the following:

1. The salt content of the meat from frozen fresh shrimp was approximately 0.5 percent by weight. Iced shrimp had a slightly lower salt content than shrimp fresh out of the water, presumably due to the leaching action of melting ice.

2. The salt content of the meat of brine-frozen shrimp varied from 1.1 to 7.4 percent by weight. The meat of fresh whole shrimp frozen and held in brine for periods of 4 hours or less had a salt content of approximately 1.5 percent.

3. After brine-freezing the salt content of the meat of iced whole shrimp and shrimp tails varied from 1.6 to 3.2 percent, or definitely higher than that of fresh whole shrimp brine-frozen immediately.

4. The absorption of salt increased when shrimp were held in the refrigerated brine for longer periods, such as 21, 24, and 48 hours.

Pending further tests on these factors, it is recommended for commercial application of brine-freezing of shrimp that:

- (1) Only fresh, firm, whole or headless shrimp be brine-frozen.
- (2) Shrimp be chilled in fresh ice water just prior to brine-freezing.
- (3) Shrimp be removed from the brine within 4 hours after freezing, rinsed in fresh cold water (34°-36° F.), and stored at 0° F.
- (4) The temperature of the brine be maintained at 10° F. or below to minimize salt absorption.
- (5) Brine-frozen whole shrimp be thawed ashore in fresh running water at 60° F. for 15 minutes, heads removed immediately, washed in fresh water, packaged, either glazed or overwrapped with a moisture vapor-proof film, and stored at 0° F.

* * * * *

Freezing Fish at Sea, Defrosting, Filletting and Refreezing the Fillets:

The experimental research trawler Delaware completed Test Cruise No. 13. Approximately 23,000 pounds of Georges Bank scrod haddock were landed. All fish were frozen in-the-round immediately after catching, and were stored in the vessel's refrigerated hold until arrival at port. The entire lot of 23,000 pounds of fish was landed at the Boston Fish Pier and stored in commercial cold storage for later thawing and processing into packaged frozen fillets. This lot of fish comprises a second commercial lot of fish that will be used for obtaining information on the length of time that round frozen fish can be stored in commercial cold storage prior to processing. A small lot (approximately 1,000 pounds) of haddock was frozen in-the-round for pilot-plant studies on processing round frozen fish into frozen dressed fish and frozen fish steaks without defrosting the round fish.

* * * * *

ANALYSIS AND COMPOSITION: Composition and Cold-Storage Life of Fresh-Water Fish: The proximate composition of 12 individual Lake Michigan chub was determined. The data are presented in the following table:

Composition of Edible Portion of Lake Michigan Chub (*Leucichthys* sp.)

Sample Number	Length of Fish Centimeters	Weight of Fish (Eviscerated) Grams	Fillet Yield from Eviscerated Fish Percent	Proximate Composition of Edible Portion			
				Moisture Percent	Fat Percent	Protein Percent	Ash Percent
1	25	145	43.4	75.0	12.05	14.4	0.97
2	23	128	45.3	74.6	9.87	15.2	0.91
3	23	137	34.3	76.9	8.54	15.9	1.04
4	23	125	37.6	75.4	8.04	15.6	0.97
5	24.5	160	45.0	77.3	11.89	14.3	0.84
6	25	145	48.3	72.2	11.50	16.4	0.85
7	22	110	40.9	77.3	7.95	15.4	1.02
8	23	107	37.4	81.4	4.84	13.8	0.83
9	21.5	88	39.8	74.9	11.52	15.5	0.95
10	22.5	95	42.1	78.8	5.16	16.2	0.87
11	21	105	40.0	75.3	7.50	14.8	0.94
12	33	125	42.4	76.4	12.82	14.6	0.85



FOOD VALUE OF FISH AND SHELLFISH

DO YOU KNOW THAT:

That the protein in fish and shellfish amounts to about 18 percent of the edible portion and is from 85 to 95 percent digestible. About 1/3 the protein eaten daily should come from animal sources to balance the less effective proteins of cereals and vegetables. An average serving of fish or shellfish supplies enough animal protein to satisfy this daily requirement. . .



TRENDS AND DEVELOPMENTS

Additions to the Fleet of U. S. Fishing Vessels

A total of 55 vessels of 5 net tons and over received their first documents as fishing craft during July 1952--30 less than in July 1951. Washington led with 11 vessels, followed by Florida East Coast with 8 vessels and Virginia with 6 vessels.

Vessels Obtaining Their First Documents as Fishing Craft, June and July 1952									
Section	J u l y		7 Mos. ending with July		J u n e		6 Mos. Ending with June		Total
	1952	1951	1952	1951	1952	1951	1952	1951	
	Number	Number	Number	Number	Number	Number	Number	Number	Number
New England	3	5	20	25	7	5	17	20	36
Middle Atlantic ..	3	6	21	27	2	1	18	21	34
Chesapeake	7	8	40	19	6	5	33	11	36
South Atlantic ...	10	10	51	68	8	15	41	58	118
Gulf	10	13	73	114	20	15	63	101	173
Pacific Coast	19	35	178	226	50	49	159	191	284
Great Lakes	1	-	7	9	2	2	6	9	25
Alaska	2	7	76	57	4	6	74	50	71
Hawaii	-	1	-	2	-	-	-	1	3
Total	55	85	466	547	99	98	411	462	780

NOTE: VESSELS HAVE BEEN ASSIGNED TO THE VARIOUS SECTIONS ON THE BASIS OF THEIR HOME PORT.

First documents as fishing craft were received by 98 vessels of 5 net tons and over during June 1952--1 more than in June 1951. Washington led with 44 vessels, followed by Louisiana with 8 vessels and Texas with 7 vessels, the Bureau of Customs of the Treasury Department reports.



Federal Purchases of Fishery Products

FRESH AND FROZEN FISH PURCHASES BY DEPARTMENT OF THE ARMY, JULY 1952: The Army Quartermaster Corps this July purchased 2,279,901 pounds (valued at \$1,097,619) of fresh and frozen fishery products for the military feeding of the U. S. Army, Navy, Marine Corps, and Air Force (see table). Lower than the previous month's purchases by 42.8 percent in quantity and 27.0 percent in value, these purchases were also considerably below July 1951--14.8 percent in quantity and 7.4 percent in value.

Purchases of Fresh and Frozen Fishery Products by Department of the Army (July and the First Seven Months, 1952 and 1951)							
Q U A N T I T Y				V A L U E			
July		January-July		July		January-July	
1952	1951	1952	1951	1952	1951	1952	1951
lbs.	lbs.	lbs.	lbs.	\$	\$	\$	\$
2,279,901	2,675,231	18,504,481	17,273,920	1,097,619	1,185,523	8,568,666	7,218,841

Purchases for the first seven months this year were greater by 7.1 percent in quantity and 18.7 percent in value as compared with the first seven months of 1951. Fresh and frozen fishery products were purchased by the Quartermaster Corps during the first seven months this year at an average price per pound of 46.3 cents--higher than the average of 41.8 cents paid in January-July 1951. This indicates to a certain extent that higher-priced products were purchased this year.



Fishery Products Marketing Prospects, July-September 1952

Consumption: Civilian consumption of edible fishery products in 1952 is expected to be about the same as the preceding year's rate. During the first half of this year slight reductions in consumption were indicated for all major groups--fresh, frozen, and canned--but some pick-up in civilian takings is in prospect after mid-summer.

Prices: Retail prices for the year as a whole probably will be about equal to those for 1951. Through mid-year the index of retail prices for all fishery products was almost the same as that of a year earlier.

Production: The commercial catch of fish and shellfish has totaled somewhat smaller so far this year than in the same period of 1951. However, production activity is now at its seasonal peak, and will continue high until mid-fall. Prospects for the year as a whole point to a total output about as large as that of 1951.

Freezings and Cold-Storage Holdings: The commercial freezing of fishery products in the United States and Alaska through mid-1952 has also been somewhat below a year earlier. Commercial freezing operations will be seasonally large in the next three months.

Cold-storage holdings of frozen fishery products in the United States and Alaska on July 1 totaled almost 20 percent larger than a year earlier--record holdings for that date. The quantity of fishery products in cold storage will continue to expand until late fall in order to build up supplies for distribution in the low-production months next winter. Over the past few years, domestic demand for frozen fishery products has expanded. This has been accompanied by a definite upward trend in the quantity of these products held in storage, a sharp increase in commercial freezings, and an increase in imports.

Canned Fishery Products: Trade reports indicate that civilians have taken smaller quantities of canned fishery products per person thus far this year than in the same part of 1951. Consumption of canned salmon and tuna was maintained at about the rate of a year earlier, but declines were apparent for Maine sardines and, to a lesser extent, California sardines (pilchards) and mackerel. Some seasonal increase will occur this summer, but the consumption rate per person probably will remain somewhat below that of a year earlier at least until early fall when the present year's packs will move to market in larger volume.

Production of canned fishery products in 1952 is expected to total about the same as last year. Current indications are that there will be a much larger pack of Maine sardines, but output of many of the other popular species of canned fishery products may be slightly smaller than in 1951. Domestic supplies of canned fishery products may be supplemented by sizable imports of salmon from Canada. This year the United Kingdom (the largest export market for Canadian canned salmon) has indicated that it will not purchase any of this commodity from Canada.

Foreign Trade: Imports of fishery products probably will be larger this year than in 1951, but no noticeable expansion in exports is anticipated. Receipts of frozen products from abroad, especially of groundfish (cod, haddock, hake, pollock, and cusk) and ocean perch fillets, may reach a record level in 1952. Through June, imports of groundfish and ocean perch fillets totaled 53.1 million pounds, more than 25 percent above the comparable 1951 total.

Exports of canned fishery products thus far in 1952 have been impeded by the foreign trade restrictions and by the relatively short supplies of the types of products--for example, California sardines (pilchards)--which are popular abroad. There is no indication that the situation will improve much this year.

This analysis appeared in a report prepared by the Bureau of Agricultural Economics, U. S. Department of Agriculture, in cooperation with the U. S. Fish and Wildlife Service, and published in the former agency's July-September 1952 issue of The National Food Situation.



New England Tuna Explorations

TUNA SIGHTED BY "MARJORIE PARKER" (Fishing Cruise No. 3): Gill nets, trammel nets, and long lines were tried by the Marjorie Parker in an 11-day trip spent in exploring for bluefin tuna in the offshore waters from Georges Bank to Jeffreys Ledge. This vessel, which has been chartered by the U. S. Fish and Wildlife Service, left July 5 and returned to Portland on July 15.

One small school of tuna was sighted on the last day of the voyage, near Portland Light Ship. Trolling lines failed to produce any strikes although the area was thoroughly covered by the vessel.

Fishing operations were started on the first day of the trip when gill nets and trammel nets were set off Halfway Rock, Maine, where tuna had been sighted a few days previously by the small-boat fleet operating in that area. No tuna were caught in this set, although a small quantity of mackerel and herring were meshed in the nets.

From July 6 to July 9, long-line trawl sets were made in various spots on the southwestern edge of Georges Bank, South Channel grounds, and on Cashe Ledge with negative results. Later in the trip long-line sets on Stellwagen Bank, Cape Cod Bay, Ipswich Bay, and York Ledges, Maine, were also unsuccessful in producing tuna. Trammel nets were fished in Cape Cod Bay and Ipswich Bay without success, while trolling with surface lures was carried on continuously during daylight hours.

Reports from other fishing vessels cited numerous observations of tuna schools in the general vicinity of Cashe Ledge and also in spots from twenty to forty miles East by South of Cape Ann Light, but the Marjorie Parker was unable to find any fish in these areas.

A series of bathythermograph recordings were made during the trip and surface water temperatures were recorded at regular intervals. Results of these tests showed that the thermocline is comparatively shallow with a gradual cooling down to the 15-fathom mark, followed by an abrupt drop to considerably lower temperatures down to 75 fathoms.

The vessel left on July 17 for Fishing Cruise No. 4 and was scheduled to return to port on July 30.

* * * * *

"MARJORIE PARKER" BRINGS IN TRIP OF BLUEFIN TUNA (Fishing Cruise No. 4): A total of 87 bluefin tuna (3,800 pounds round weight) were landed at Portland on July 26 by the Marjorie Parker after completing the fourth trip of the 1952 tuna exploration. The tuna were taken by floating Japanese long line in offshore waters 24 miles SE. x E. of Peaked Hill Bar Buoy off Chatham, Massachusetts, on July 23, 24, and 25.

A large school of tuna was sighted in the area on the afternoon of July 23. Ten baskets of long line with 70 hooks were baited with frozen squid, and adrift surface set of four hours resulted in a catch of 32 fish, averaging 40 pounds each--a successful fishing effort of 45 percent.

A set of 20 baskets was made that evening and 51 fish were caught on the 140 hooks during a period of 10½ hours--a 36 percent successful set. A later set of 10 baskets the same day resulted in a catch of 7 tuna. An overnight set of 5 baskets caught 6 more fish the following day. Contact with the school was lost on July 25 when a set of 3 baskets produced a total of 6 fish.

While standing by the gear and using dead herring for chum, the school fish were successfully lured alongside the vessel. However, the tuna would not take the dead herring, although using frozen squid for bait two fish were caught on hand lines during this period. Live bait may have proved extremely attractive to the school, and conditions appeared favorable for live-bait fishing with jig poles.

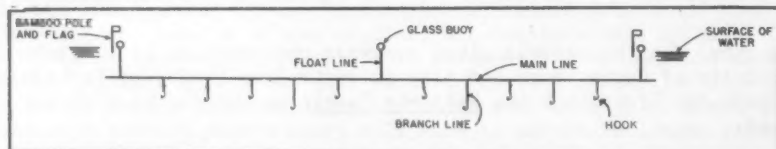
Sharks were active in the vicinity, especially during the night sets, and tuna losses were quite high. Two trammel nets were set in the area on the afternoon of July 27, but no tuna were caught by this method. Although 85 hours were spent trolling, no tuna were caught by this method.

The fish brought in by the vessel were purchased by a Portland fish company (highest bidder) at \$200 per ton.

Fishing Cruise No. 5 was started by the vessel on July 30. The vessel, which will fish in the Gulf of Maine, is expected to return to port on August 10.

* * * * *

"MARJORIE PARKER" SUCCESSFULLY CATCHES BLUEFIN TUNA WITH LONG-LINE GEAR (Fishing Cruise No. 5): Catches of bluefin tuna at rates as high as 46 fish per hundred



TYPICAL JAPANESE LONG-LINE TUNA-FISHING GEAR WHICH IS BEING TESTED BY THE MARJORIE PARKER FOR BLUEFIN TUNA FISHING IN NEW ENGLAND WATERS.

10. Total catch was 3,855 pounds of bluefin, averaging 43 pounds per fish. As on the previous trip, all tuna were caught on floating long lines baited with frozen squid.

hooks were made by the Marjorie Parker on Cruise No. 5 of this year's New England bluefin exploration. The trip was terminated at Portland on August

10. Total catch was 3,855 pounds of bluefin, averaging 43 pounds (round weight) per fish.

Fishing operations were conducted in two general areas: southeast of Cape Cod and east southeast of Cape Ann. Catches from the latter area accounted for all but five of the tuna taken. Few schools were seen, and practically all the sets were made with no surface signs of fish. Tuna were caught on 13 of the 17 sets made. A set of 8 baskets (56 hooks) on August 8 off Eastern Point resulted in a catch of 26 tuna. On August 9, a set of 20 baskets (140 hooks) caught 35, and 10 baskets produced 14 tuna. Two sets of trammel nets did not catch tuna, and surface trolling was also unproductive.

The Japanese long line used on this trip contains 900 feet of tarred cotton main line per basket with 7 short branch lines attached at regular intervals, these ending in a wire leader and baited hook. Support is provided by glass floats, 10 inches in diameter tied directly to each end and to the center of each basket of main line. Flag buoys are attached at every fifth basket. Rigged thus, the gear floats in the warm water zone near the surface. It is set from the stern while under reduced speed, and after drifting for about 4 hours it is hauled from the starboard side amidship. About 1½ hours is normal hauling time for 20 baskets. To determine the style of long line most effective for New England bluefin, various modifications of this gear are being tested, such as additional floats to keep the hooks near surface-swimming fish, shortening of branch lines to allow more hooks per basket, and different baits.

Successful bids from commercial fish companies for this catch of tuna were at \$240 and \$220 per ton.

The Marjorie Parker left Portland, Maine, on August 14 for fishing Cruise No. 6. Using long lines, surface trolls, and trammel nets the vessel will fish east of Portland in the Seguin Island-Monhegan Island areas, Jeffreys Ledge, southeast of Eastern Point, Gloucester, and Fippennies Ledge. It is expected to return to port about August 24.

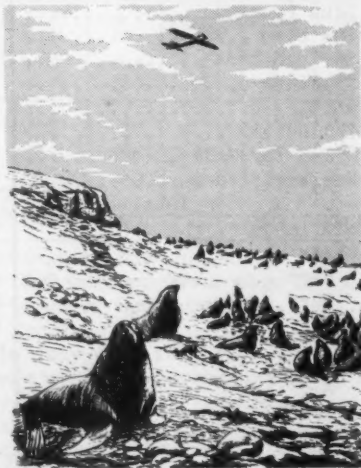


Pribilof Islands Fur-Seal Take For 1952

A total of 63,870 fur-seal skins was taken this year in the Government-administered sealing operations on Alaska's Pribilof Islands, the Secretary of the Interior announced August 1. The annual sealing operations, which are conducted by the U. S. Fish and Wildlife Service, began on June 20 and were terminated on July 27.

The fur-seal industry on the Pribilofs is a responsibility of the United States Government, but 20 percent of the 1952 take will be delivered to the Canadian Government under the terms of the Provisional Fur-Seal Agreement of 1942 with Canada.

This year's yield was 3,181 skins greater than last year. Pelts are obtained chiefly from three-year-old males. Service officials on the Pribilofs have advised that the remaining animals in the three-year-old class and the carry-over of older males "assure ample reserve stock for the herd."



ALASKA FUR SEALS

This year, for the first time, a new beaming machine for the mechanical blubbering of the seal skins was successfully operated on the islands. Also, a new concrete paddle tank for brine-curing the skins was reported to have operated successfully. These developments are aimed at streamlining the various operations required to prepare the skins for shipment to St. Louis for dressing and dyeing by the Fouke Fur Company--Government agents in the processing and selling of the seal skins.

Approximately 80 percent of the world's fur seals come to the Fribilof Islands to breed each summer. During the winter they range southward as far as southern California. Pelagic sealing--the killing of seals while they are at sea--is prohibited by an international agreement between Canada and the United States. At one time pelagic sealing nearly brought about the extinction of these animals.



New York State Marine Fisheries Production, 1951

New York State's marine fisheries production in 1951 amounted to 339,805,489

New York State Marine Fisheries Production, 1950-51				
Species	1951		1950	
	Quantity lbs.	Value \$	Quantity lbs.	Value \$
Fish:				
Swellfish (blowfish)	738,269	59,062	788,900	63,112
Butterfish	1,877,529	281,629	1,036,537	196,942
Cod	1,893,328	283,999	2,016,870	262,193
Flounder	918,304	91,830	2,224,210	222,421
Fluke	2,656,528	531,305	4,098,390	778,694
Haddock	13,126	1,969	809,266	97,112
Herring	542,520	10,850	139,100	4,173
Menhaden	144,374,699	1,443,746	120,281,400	1,202,814
Scup (porgy)	9,832,109	983,210	8,888,513	799,966
Sea bass	2,771,560	554,312	1,703,114	340,623
Striped bass	684,536	191,670	507,620	131,981
Tilefish	447,387	53,686	926,197	111,144
Whiting	681,279	48,690	661,895	33,095
Yellowtail	768,148	138,267	1,190,520	142,862
Mixed for Animal Food	135,000	2,700	3,246,000	32,460
Unclassified	1,886,377	241,012	2,573,170	342,465
Total	170,220,699	4,917,937	151,091,702	4,762,057
Shellfish: 1/				
Clams:				
Hard	42,836,325	2,327,392	47,635,440	2,530,633
Surf	26,974,240	674,356	21,226,720	530,668
Oysters	93,829,055	7,513,440	81,254,850	5,416,990
Scallops:				
Bay	910,170	121,356	243,315	32,442
Sea	3,378,149	1,689,075	4,806,247	2,162,811
Squid	955,086	66,856	633,607	44,352
Unclassified	701,765	131,115	680,889	132,555
Total	169,584,790	12,523,590	156,481,068	10,850,451
Grand Total	339,805,489	17,441,527	307,572,770	15,612,508
1/ WEIGHT IN THE SHELL.				
NOTE: ONLY MAJOR SPECIES ARE LISTED INDIVIDUALLY.				

pounds (valued at \$17,441,527 to the fisherman). Compared with 1950, this was an increase of 10.5 percent in catch and 11.7 percent in value. The menhaden catch increased from 120,281,400 pounds (valued at \$1,202,814) in 1950 to 144,374,699 pounds (valued at \$1,443,746) in 1951. Hard-clam production dropped from 47,635,440 pounds (weight in the shell) in 1950 (valued at \$2,530,633) to 42,836,325 pounds (valued at \$2,327,392) in 1951. However, this drop in hard-clam production was offset by an increase in the surf-clam production from 21,226,720 pounds (weight in the shell) in 1950 (valued at \$530,668) to 26,974,240 pounds (valued at \$674,356) in 1951. Oysters also showed a substantial increase--from 81,254,850 pounds (weight in the shell) in 1950 to 93,829,055 pounds in 1951.



Wholesale and Retail Prices

WHOLESALE PRICES, JULY 1952: Wholesale price fluctuations from June to July this year were mixed. The wholesale over-all index for edible fish and shellfish

Table 1 - Wholesale Average Prices and Revised Indexes for Edible Fish and Shellfish, July 1952 with Comparative Data								
Group, Subgroup, and Item Specification	Point of Pricing	Unit	Average Prices		Indexes (1947-49 = 100)			
			(\$)					
			July 1952	June 1952	July 1952	June 1952	May 1952	July 1951
ALL FISH AND SHELLFISH (Fresh, Frozen, and Canned)								
Fresh and Frozen Fishery Products:								
Drawn, Dressed, or Whole Finfish:								
Haddock, large, offshore, drawn, fresh	Boston	lb.	.11	.10	113.4	102.5	108.6	105.8
Halibut, Western, 20/30 lbs., dressed, fresh or frozen	New York City	"	.35	.33	108.3	102.2	106.8	99.1
Salmon, king, lge. & med., dressed, fresh or frozen	" " "	"	.49	.54	110.2	120.9	125.9	116.4
Whitefish, mostly Lake Superior, drawn (dressed), fresh	Chicago	"	.35	.39	85.7	96.7	130.1	106.1
Whitefish, mostly Lake Erie pound or gill net, round, fresh	New York City	"	.47	.44	94.0	88.0	131.4	109.2
Lake trout, domestic, mostly No. 1, drawn (dressed), fresh	Chicago	"	.58	.53	117.8	107.8	101.4	107.8
Yellow pike, mostly Michigan (Lakes Michigan & Huron), round, fresh	New York City	"	.71	.46	166.5	106.7	102.0	132.5
Processed, Fresh (Fish and Shellfish):								
Fillets, haddock, small, skins on, 20-lb. tins	Boston	lb.	.27	.28	101.1	100.7	92.2	101.2
Shrimp, lge. (26-30 count), headless, fresh or frozen	New York City	"	.60	.59	94.9	93.3	88.5	93.1
Oysters, shucked, standards	Norfolk area	gal.	4.50	4.50	111.3	111.3	111.3	112.5
Processed, Frozen (Fish and Shellfish):								
Fillets:								
Flounder (yellowtail), skinless, 10-lb. pkg.	Boston	lb.	.36	.37	124.4	129.7	129.7	147.2
Haddock, small, 10-lb. cello-pack	"	"	.24	.24	87.4	89.3	89.3	90.2
Ocean perch (rockfish), 10-lb. cello-pack	Gloucester	"	.23	.23	108.3	108.3	110.7	105.7
Shrimp, lge. (26-30 count), 5-lb. pkg.	Chicago	"	.64	.65	98.7	99.5	94.1	97.8
Canned Fishery Products:								
Salmon, pink, No. 1 tall (16 oz.), 48 cans per case					96.8	99.4	102.2	103.5
Tuna, light meat, solid pack, No. 1 (7 oz.), 48 cans per case	Seattle	case	19.95	21.00	104.4	109.6	109.6	125.2
Sardines (pilchards), California, tomato pack, No. 1 oval (15 oz.), 48 cans per case	Los Angeles	"	14.50	14.35	90.5	89.6	89.6	80.9
Sardines, Maine, keyless oil, No. 1 drawn (34 oz.), 100 cans per case	"	"	9.38	9.38	109.4	109.4	109.4	80.0
	New York City	"	6.45	6.70	68.6	71.3	102.7	75.7

1/ REPRESENT AVERAGE PRICES FOR ONE DAY (MONDAY OR TUESDAY, IF AVAILABLE) DURING WEEK BEGINNING JULY 13. PRICES ARE NOT THE ACTUAL ONES USED TO COMPUTE THE

1/ REPRESENTATIVE AVERAGE PRICES FOR ONE DAY (MONDAY OR TUESDAY, IF AVAILABLE) DURING WEEK BEGINNING JULY 15. PRICES ARE NOT THE ACTUAL ONES USED TO COMPUTE THE INDEXES SINCE THE PRICES WERE FOR THAT PURPOSE ARE CARRIED OUT TO TWO DECIMAL PLACES.

(fresh, frozen, and canned) for July was 102.9 percent of the 1947-49 average (see table)--0.1 percent above the previous month, but 2.0 percent lower than in July 1951, the Bureau of Labor Statistics of the Department of Labor reports.

Although July fish landings in New England in July were as liberal as in June, increased demand raised July prices for fresh offshore drawn haddock up above June this year and July 1951. Salmon prices dropped in July. Dressed fresh or frozen halibut prices in July were substantially (6.0 percent) above those quoted in June. Drawn whitefish receipts at Chicago were fairly heavy in July and prices were substantially below the previous month and a year earlier. On the other hand, round fresh whitefish receipts at New York City in July were light and prices rose substantially over the previous month, but were lower than in the

corresponding month a year ago. Lake trout and yellow pike production in the Great Lakes was light and July prices for these fish were considerably above the previous month and the same month last year. Mainly due to higher prices for fresh haddock and halibut, the drawn, dressed, or whole finfish subgroup index this July was 3.4 percent above the previous month and 2.5 percent higher than in July 1951.

Fresh processed fish and shellfish prices from June to July rose only 0.4 percent, but these prices were 0.1 percent lower than in July last year. Heavy



MODERN RETAIL FISH MARKET

haddock landings in New England brought fresh haddock fillet prices in July 3.6 percent below June and 4.0 percent lower than in July 1951. Because of a drop in shrimp production in the Gulf area, fresh headless shrimp prices rose 1.7 percent from June to July this year and were 1.9 percent higher than in July a year ago.

Frozen processed fish and shellfish prices this July dropped 1.3 percent below June and were 2.7 percent lower than in July 1951. From June to July this year, lower prices were quoted for all frozen fillets and for frozen shrimp. Compared with July 1951, prices for ocean perch fillets were 2.5 percent higher and for frozen shrimp 0.9 percent higher, while frozen flounder and haddock fillet prices were considerably lower.

Canned fishery products prices in July continued to drop due to a decline in tuna, salmon, and Maine sardines. The month's index for this subgroup was 2.6 percent lower than in June and 6.5 percent below July 1951. Compared with July last year, prices for canned salmon were 16.7 percent lower and for Maine sardines 6.9 percent lower, while prices were up for canned tuna (11.9 percent) and for canned California sardines (36.8 percent).

RETAIL PRICES, JULY 1952: While retail prices of all foods bought by moderate-income urban families have been climbing steadily beginning in April this year, prices of all finfish (fresh, frozen, and canned) have steadily declined since March. The retail food index on July 15, 1952, was 234.9 percent of the 1935-39 average--1.5 percent higher than a month earlier and 3.2 percent above the same period in 1951 (see table 2). But all finfish in mid-July retailed 0.5 percent below the previous month and 3.2 percent below the same month a year earlier. Although retail prices for fishery products in general seasonally decline during the spring and summer months, the declines reported this year have been more pronounced than in 1951 and 1950.

Table 2 - Adjusted Retail Price Indexes for Foods and Finfish, July 15, 1952, with Comparative Data

Item	Base	I N D E X E S		
		July 15, 1952	June 15, 1952	July 15, 1951
All foods	1935-39 = 100	234.9	231.5	227.7
All finfish (fresh, frozen, and canned)	do.	342.1	343.9	353.3
Fresh and frozen finfish	1938-39 = 100	291.8	293.3	288.1
Canned salmon: pink	do.	454.2	456.9	509.2

Retail prices for fresh and frozen finfish from June 15 to July 15 dropped 0.5 percent, but were still 1.3 percent above mid-July 1951. Canned pink salmon

prices, which have been steadily dropping since June 1951, went even lower and in mid-July were 0.6 percent lower than the previous month and 10.8 percent below the same period in 1951.

Table 3 - Average Retail Prices and Price Ranges of Individual Finfish Products, July 15, 1952

Product	Unit	UNITED STATES		
		Range of Prices	Average	Average
		July 15, 1952	July 15, 1952	June 1952
Frozen Finfish Fillets:		¢	¢	¢
Ocean perch ¹	lb.	29-69	45.9	46.1
Haddock ²	lb.	35-75	50.1	50.5
Canned Finfish:				
Salmon, pink	16-oz. can	39-79	56.2	56.5

¹/PRICED IN 46 CITIES OUT OF 56.

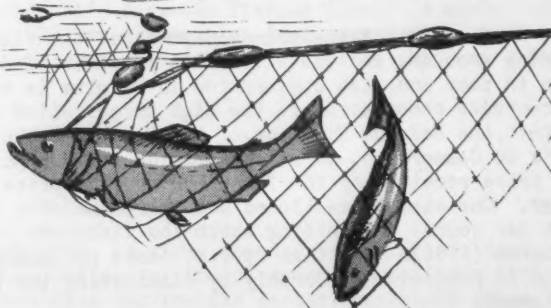
²/PRICED IN 47 CITIES OUT OF 56.

Frozen ocean perch fillets retailed at an average of 45.9 cents and frozen haddock fillets at an average of 50.1 cents per pound in mid-July this year. During the same period a year earlier, retail prices for frozen ocean perch fillets averaged 46.6 cents and frozen haddock fillets averaged 50.7 cents per pound. In mid-July canned pink salmon retailed at an average of 56.2 cents per 16-oz. can, compared with 63.0 cents per can in mid-July a year ago.



PACIFIC SALMON DRIFT GILL NETTING

A gill net is one of the oldest forms of nets used for commercial fishing. In effect, it is an upright fence of netting with an appropriate mesh to permit fish of certain size to pass only part way through. The fish is then "gilled" and can neither go forward nor back (see figure). Gill nets are versatile, for various sizes of mesh can be used and the net can be suspended at the surface or the bottom merely by controlling the size and number of floats on the top level and lead weights on the bottom, or at intermediate depths by the addition of floats and buoy lines. They may be operated as stationary or movable gear.



GILLING ACTION OF SALMON GILL NET

Drift gill nets, used extensively in the Pacific salmon fisheries, consist of a net with one end of net floating or drifting freely in the current while the other end is fastened to the boat. These nets are normally operated by one man, except in areas where large catches are made. They are employed at or near the mouths of larger rivers on the Pacific coast of the United States, British Columbia, and Alaska where the waters are dark in color or laden with silt or mud. In relatively clear waters the nets are usually fished at night for the salmon can avoid them in the daylight hours. The size of mesh used is dependent on the type of fish prevalent in a locality.



Belgium

INTERNATIONAL FISH EXHIBIT: An international conference and exposition of the fishing industry was held June 21-30, 1952, at Heist-aan-Zee, Belgium. The main purpose of the conference was to formulate plans to improve the fisheries industry in Belgium and to encourage greater consumption of fish. The past three years the fishermen of Belgium have had extremely difficult times due to the relatively small catch and to low prices which the fishermen have received for their fish, reports a July 25 American Embassy report from Brussels.

IMPROVEMENT OF FISHING INDUSTRY PLANNED: Fishing grounds are long distances away from Belgium, frequently requiring around 15 days for the trip. By the time the fish reach the markets, especially those away from the seashore, the fish are of inferior quality. Therefore, an organization was founded to assist the fishermen in improving their equipment and modernizing their fishing fleet. Special emphasis will be given to refrigeration of the ships and modernizing equipment of the ships' holds so that the fish will be in better condition when they are landed.

The organization will also aim at assisting to modernize the transportation, handling, and distribution of the fish in Belgium. It is intended that nine modern shops will be installed for selling fish in each of the provinces. These will be demonstration shops to encourage larger distribution of fish by providing better quality at lower prices to the consumers. At the present time there are said to be about 17,000 fish peddlers, most of whom operate with carts. The fish shops are mainly in the large cities but even these are seldom equipped with proper refrigeration and modern equipment.

As a result of the poor equipment of the fishermen, the long distances to the fishing grounds, and the old-fashioned means of distribution, the quality of the fish is poor and fish consumption in Belgium is very low. Another factor which discourages consumption is the high prices which the consumers must pay. In this respect, the Belgium Director of the Bureaux Techniques de Documentation de la Pêche du Commerce et de l'Industrie du Poisson pointed out that the spread between the price received by the fishermen and the price paid by the consumer is far too large. One example mentioned was the price of 4 francs per kilogram (about $\frac{1}{2}$ U.S. cent per pound) for whiting which the fishermen received as against 20 francs per kilogram (little more than $2\frac{1}{2}$ U.S. cents per pound) paid by the consumer. This could be reduced considerably by eliminating the small peddlers and modernizing the shops.

As one of the first steps in the program of improving the fishing industry, it is planned that a request will be made to the Government for a grant of 150 million francs (about US\$429,000) to modernize the fishing fleet and for 15 million francs (US\$42,900) for refrigeration for a fish auction market. Also committees have been established to provide free technical advice to the fishermen and distributors.



Canada

FILLETING PLANTS PROJECTED FOR NEWFOUNDLAND: The construction of a new filleting and fish-meal plant is planned for Placentia, a June 25 American consular dispatch from St. John's reports. Initial construction is expected to begin within the next two months. When fully completed, the plant will have cost in the neighborhood of C\$700,000, of which C\$350,000 will represent a loan from the Provincial Government. One dragger will be operated at the outset, with additions to the fleet planned later. Long-line fishing, it is expected, will be developed along with other fishing methods. Production is expected to start early in 1953. Between 75 and 100 employees, both men and women, will be on the payroll at wages and salaries "in line with whatever recognized scale may be in effect." United States capital (amount not revealed) will be invested in this plant by a Boston fishery firm which will become shareholders and act as a marketing outlet in the United States.

Another filleting plant is also planned for Placentia. According to best sources of information, another Boston fishery firm is beginning negotiations for a filleting and fish-freezing plant at Marystown (Placentia Bay), but little or no construction work on this plant has been started to date. Balanced operations are envisaged, handling many types of fish, with catches to be supplied by fishermen-owned fishing craft. The plant does not now intend to operate its own vessels, according to reports, and would appear to be the only large firm in the Province to operate wholly on fish purchased from independent fishermen.

A leading businessman of Marystown, recently returned from the United States, told the press that he had found in that country widespread interest in the development of Newfoundland's fresh-frozen fish industry, and that American investors were "anxious and willing" to make investments in Newfoundland filleting plants but were presently reluctant to do so because of the severity of Canadian federal fishery regulations. The businessman "hoped that federal officials would take appropriate steps to enable United States financiers to pour their capital into the development of the Province's fisheries.

Work has just begun on a filleting and fish-meal plant to be erected and operated at Grand Bank by a St. John's fishery firm. Grand Bank is the center and largest outfitting port for Newfoundland's deep-sea fishing fleet. A member of the firm advises that the plant should be in operation in a year's time; approximately 150 men and women will be employed. It cannot be learned that any United States capital is involved.



Colombia

TUNA-FISHING VENTURE NOT SUCCESSFUL: A firm, founded by Colombia's semi-official Industrial Development Corporation for the purpose of exploiting the fishery resources of Colombia's Caribbean and Pacific coasts, purchased three 100-foot tuna-fishing boats in order to go into the tuna-fishing business on a comparatively large scale. However, the firm has consistently shown losses since its foundation in 1946, and the Industrial Development Corporation now thinks that it might have been a bit over-enthusiastic in its plans for the firm's expansion, an April 21 American consular dispatch from Bogota reports.

The company now wishes to sell one of the tuna boats and to enter into an agreement with an American firm to come into the company on a partnership basis

or to charter the boats outright and possibly to operate a fish-canning factory, the machinery for which is now arriving in Buenaventura for installation in that city.



German Federal Republic

AMERICAN TRAWLERS TO BE RETURNED TO U. S.: The remaining 11 of 12 United States fishing trawlers furnished to the Federal Republic of Germany on a charter basis under the authority of the Foreign Aid Appropriation Bill of 1949 are scheduled to be returned by the German fishing industry to the United States Government for final disposition. The decision to return these vessels to the Department of the Army via HICOG was made after it was determined that the German fishing industry had reached a position whereby these trawlers were no longer required.

Present arrangements call for the withdrawal of these fishing vessels from the German fleet and return to United States Government control in three transfers. The first transfer of four vessels was expected to take place on August 15, 1952; four more on September 1, 1952; and the remaining three trawlers on September 20, 1952.

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EXPLORATORY TRAWLER FISHING OFF GREENLAND SUCCESSFUL: After 23 days of exploratory fishing off Greenland's west coast and in Davis Strait, two German trawlers returned to Germany with full loads and much valuable data, according to Fiskaren (July 16), a Norwegian trade paper.

Despite the limited time devoted to fishing because of the other technical objectives, the vessels filled their holds with over 250 metric tons of cod and a large quantity of ocean perch (rosefish).

The exploratory fishing was successful in all respects. The material and information collected will be analyzed and upon the results will depend eventual further German participation in the trawl fishery off West Greenland.

The German vessels reported meeting many English, Icelandic, Norwegian, Faroese, Danish, and Portuguese fishing craft. The Portuguese had three large vessels with crews of 82 men each. A total of 62 cutters and schooners were reported based on Greenland.

The scientific head of the expedition expressed surprise at finding individual haddock and pollock in the trawl. He was of the opinion that trawlers would be able to fish in Greenland waters with ordinary trawl gear until late in the year. Only drift ice would be a problem. Radar contributed to the good results of the present expedition. Without radar it would have been difficult to trawl because of the numerous drifting icebergs.

A German trawler, which originally intended to fish outside the four-mile boundary off southern Iceland, has gone to Greenland instead.

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TRAWLER FLEET DECREASES: During the first quarter of 1952, the Western German trawler fleet decreased from 216 to 206, according to a June 6 American con-

lar report from Bremerhaven. Nine trawlers were scrapped, three were sold abroad, and one (the 443-ton Bremerhaven trawler Thor) sank in a storm in the North Sea. The newly-built trawler Bonn was put into operation, one trawler was bought from Belgium, and one former German trawler was bought back from France.



Germany (Russian Zone)

DEVELOPMENT OF FISHING INDUSTRY: The economic plan formulated by the East German authorities calls for an 84.9 percent increase in fish production for East Germany during 1952. Representatives of the West German fishing industry were skeptical of the ability of the East German fishing industry to meet this goal but considered the pronouncement significant as an indication of state interest in the development of the East German fishing industry, states a June 6 American consular dispatch from Bremerhaven.

The new East German 1,050-ton trawler ROS-202 went out on its first fishing voyage in the latter part of March, fishing in the North Sea and Barents Sea. The Soviet Zone state fishing industry continued its shipbuilding program with plans for 36 luggers and 15 trawlers to be built during 1952. The trawlers were all to be of 1,000 gross tons or more in size. Four high-sea luggers were completed during the first quarter of 1952; and the first fish-meal and fish-oil factory in the Soviet Zone began operations.



Hong Kong

OPERATION OF A WHOLESALE FISH MARKET: A wholesale market in Kowloon handles both fish and vegetables. This is representative of the Government fish and vegetable wholesale markets developed in the Colony. The products handled are collected from the fishermen and farmers by the market's vessels and trucks. They are brought to the market where they are unloaded, sorted, weighed, sold by a market auctioneer to local buyers, and distributed by market trucks to local hawkers and stores. For these services a commission of 6 percent of the sales price is charged the fishermen and 15 percent to the farmers.

The fish are brought in by both junk and truck and unloaded on the dock where the market's staff sorts them by type and size into baskets up to 29 catties in weight (47 pounds). A triplicate receipt is made out which indicates seller, type of fish, weight, sales prices, and buyer. This is sent to the accounting office where records are kept for the buyers and sellers registered with the market. Buyers are required to keep a certain deposit with the market, and when this runs out during the selling, the buyer is notified so that he may renew his credit. Likewise, a quick accounting is made of the day's sales, so that the fisherman may get his money the same day that his boat is unloaded. The market also advances loans to the fishermen at low rates of interest which are promptly repaid.

The officials are constantly seeking out new means of improving the service and technique of the market. A fence has now been erected to separate the buyers from the fish while they are being sorted and a system of pens is being extended through which the baskets of fish will be passed to keep the fishermen on the sides during the auctioneering. Some sort of conveyor belt will be introduced

later which would convey the fish from the hold, past the graders, and to the auctioneering space.

Two important advantages have been derived from this cooperative market arrangement. One is that the farmer and the fisherman get a fair price for their produce and the middleman's profit is eliminated. The farmer and the fisherman are able to watch the price by maintaining an agent among the buyers who can bid and can authorize the withdrawal of the produce if the price falls too low. The market officials state that in the second place this is one of the only markets in the world where there has been no appreciable rise in prices in the last five years. The additional cost which the consumer has to pay is added by the retailer to meet his increasing expenses.

The market also handles fish and vegetables which are imported from Kwangtung in China. It is stated that the rural banks keep an up-to-date list of the prices being charged in these markets and require the exporters to deposit about 80 percent of the expected proceeds before being given permission to export their products, which are principally fresh-water fish, and certain vegetables. The local fishermen sometimes find it worth while to take their lower-grade fish to China where they get higher prices and better rice, but to bring their higher grades of fish to Hong Kong where they can buy other commodities. The South China authorities have also borrowed the idea of the fish and vegetable market and have set up a similar organization in South China. The manager is a former manager of one of the local cooperative markets and he has introduced the entire procedure down to the same receipt form.

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FISHERIES RESEARCH UNIT AT HONG KONG UNIVERSITY: Under the terms of the United Kingdom Colonial Development and Welfare Acts, the British Colonial Office made loans and grants to British territories in Southeast Asia during April 1951-March 1952, according to the Singapore Standard (July 6) and as reported by the American consulate at Singapore. Among the grants was one for £38,000 (US\$106,000) to Hong Kong for establishing a fisheries research unit at the Hong Kong University.



Iceland

BRITISH PROTEST ICELANDIC TERRITORIAL WATERS REGULATIONS: The United Kingdom has lodged several protests against the Icelandic territorial waters regulations promulgated by the latter country on March 19, 1952.

On June 18, the British Charge d'Affaires in Reykjavik presented a note to the Icelandic Foreign Minister, in reply to the Icelandic note of May 12, which was itself in reply to a British note of May 2, 1952, protesting against the Icelandic territorial waters regulations.

The British note of June 18 rejected the Icelandic claim that there had been prior consultation with the British before the regulations of March 19, 1952, were promulgated; rejected the Icelandic claim of the validity of the new base line closing off Faxa Bay; and rejected the Icelandic claim on the invalidity of the 3-mile rule in International Law. The British reserved "the right to claim compensation from the Icelandic Government for any interference with British fishing vessels in waters which in the opinion of Her Majesty's Government are high seas," a June 19 American Consular dispatch from Reykjavik reports.

There is an inference in the clause quoted above that British fishing vessels may be advised by the British Government to ignore that part of the new Icelandic prohibited fishing zone which is not recognized by the United Kingdom. This would include the zone between the new Icelandic 4-mile limit and the 3-mile limit accepted by the British around the entire coast of Iceland; also an area at the opening of Faxa Bay, where the British do not accept the new Icelandic base line.

There have thus far been no instances of any fishing vessels, Icelandic or foreign, caught in violation of the new Icelandic regulations, which became effective on May 15, 1952.

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BRITISH TRAWLER ARRESTED IN NEW RESTRICTED ZONE: A British trawler was arrested off the northwest coast of Iceland by that country's coast guard cutter on July 16, reports the July 19 issue of The Fishing News, a British fishery periodical. The trawler was accused of fishing inside Iceland's new fishing zone demarcation line.

This was the first arrest of a British trawler within the territorial waters boundary established for fishing recently by Iceland. It was reported that the case went before a court at Reykjavik for immediate hearing and the skipper of the vessel was fined L1,970 (about US\$5,500).

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GROUND FISH OFFAL MARKET DEVELOPED IN U. S.: The Icelandic fishing industry, according to local newspaper reports, has begun to utilize groundfish offal as an export article. The offal brings a good price in the United States where it is used in the manufacture of glue. The groundfish offal to be exported is separated by special machinery and salted. The skins are packed separately and exported in 110-pound sacks, according to the April 24 issue of Fiskets Gang.



India

TRANSPLANTING OF PEARL OYSTERS UNSUCCESSFUL: Live pearl oysters were flown from the Persian Gulf to Madras in October 1950 by the Assistant Director of Madras Fisheries for use in research and experimental work and in an effort to revive pearl fishing in Madras State. These 800 live pearl oysters were placed in the Gulf of Mannar, between continental India and Ceylon, reports a January 3 American consular dispatch from Madras. All of these oysters died due to their inability to adjust to conditions prevailing in the Gulf of Mannar.

Pearl oysters thrive in the Persian Gulf, but have been rare in the Gulf of Mannar in recent years, states the Deputy Director of Madras Fisheries.



Irish Free State

NEW FISHERIES LEGISLATION: Sea Fisheries Bill Passed: The Sea Fisheries Bill, 1952 has been enacted by both houses of the Oireachtas (Irish Parliament), states an April 30 American Embassy report from Dublin. The Sea Fisheries Bill, 1952, introduced into the Irish Parliament on February 13, reiterated with but few minor changes the terms of the Sea Fisheries Bill, 1950. The earlier bill did not pass. The new bill aims at the reorganization of existing sea fishery associations in order to protect small fishermen working close to shore. It re-tails considerable official control over the industry, by establishing a new Board (An Bord Iascaigh Mhara) with members to be appointed by the Minister of Agriculture (who is also Minister of Fisheries).

Fishermen themselves will be organized in a new association (An Comhlachas Iascaigh Mhara), replacing the Irish Sea Fisheries Association which has existed since 1931. Membership in the second new organization will also be open to the fish distributors. The bill makes financial provision for the new bodies and allows for interest-bearing loans from the Central Fund, up to £500,000 (US\$1,400,000), to be administered by the Government-appointed control body (An Bord Iascaigh Mhara).

The new 6-man Board (An Bord Iascaigh Mhara), set up under the act as a new controlling part-time body with greater powers than the former Association which it replaces, was recently appointed by the Minister of Agriculture. The membership consists of a member of the Fisheries Branch, Department of Agriculture, as chairman, and representatives of provincial fisheries interests. Through the Board, official controls will be exercised over fisheries. It will operate large boats in areas where small inshore boats cannot go, and will regulate the landings and sale of fish.

Salmon Fisheries in Lough Foyle Under Government Control: The Foyle Fisheries (No. 2) Bill, 1951, recently passed by both houses of the Oireachtas (Irish Parliament) provides for the joint acquisition by the Governments of Ireland and Northern Ireland of the valuable salmon fisheries in Lough Foyle. This new bill, which parallels similar legislation introduced into the Northern Ireland Parliament, supersedes a bill introduced by the former. This legislation is expected to eliminate rather extensive poaching activities, which were made possible through divided responsibility in those waters. Fishing rights are to be purchased for £100,000 (US\$280,000), in equal shares, by both Governments from a body known as the "Irish Society" which held them for centuries, and following acquisition, will be administered by a joint board representing both parts of Ireland.

The concluding ceremony attending the joint purchase of the Foyle fisheries took place in Dublin on April 8.

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NEW COLD-STORAGE AND FISH-MEAL PLANT: A cold-storage and fish-meal factory, established by the former Sea Fisheries Association at Killybegs, Donegal, is expected to be in production in a few months, according to an April 30 report. Machinery for making fish meal has reached Ireland from Germany, while the cold-storage equipment has already been installed. Cheap grades of fish (in combination with sprats and other fish to insure that the oil content of the meal will not exceed 8 percent) will be converted into animal feedstuffs. This factory is being established as a pilot plant at one of the leading Irish fishing centers.



Japan

CANNED CRAB MEAT CHECK PRICES: On exports of canned crab meat to the United States and Canada, the Japanese Government recently announced the following check prices. These prices are for meat packed in crab no. 2 can (7 oz.), 4 dozen cans to the case, f.o.b., and are in effect July 1-December 31, 1952, reports an American Embassy report from Tokyo dated July 14.

Kind	Grade	Price Per Case ^{2/}	Kind	Grade	Price Per Case ^{2/}
		US\$			US\$
King Crab ^{1/}	Fancy	24.00	King Crab ^{2/}	Choice	18.00
King Crab ^{1/}	Fair	22.50	Hair Crab	Choice	15.00
King Crab ^{1/}	Passed	19.50			

^{1/} PARALITHODES TILESIIUS.
^{2/} PARALITHODES BREVIDES, BRANDT.
^{3/} A) 25 CENTS HIGHER PER 2 DOZEN IF PACKED IN PAPER BOX.
 B) IF CANS ARE TO BE LABELED, AN EXTRA CHARGE OF 15 CENTS PER 4 DOZEN WILL BE MADE.

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MEETING ON JAPANESE FISHERIES POLICIES AND PROGRAMS: A meeting between a top-ranking official of the Japanese Government and leaders of the Japanese fishing industry was held on July 23 in Tokyo to discuss Japanese Post-Treaty fisheries policies and programs. As reported in the Japanese press (*Nihon Keizai*, July 24), Minister Kozen Hirokawa, Ministry of Agriculture and Forestry (which includes the Fisheries Agency), met with about 40 leaders "representing financial and marine industrial circles, in addition to scholars, experts, and governors of prefectures where the aquatic industry is thriving," an American Embassy dispatch from Tokyo points out.

Minister Hirokawa's speech was summed up as follows:

"1. Although our aquatic industry has been restored to some 80 to 90 percent of the prewar level, there is as yet considerable room for development of our ocean fishery which, in prewar years, accounted for one-third of world-wide marine production. In this respect, I am glad to say that with the abolition of the MacArthur Line, our fishermen started salmon and trout fishing operations in the Northern Pacific Ocean, bonito and tuna in the Southern Pacific Ocean, trawling in the South China Sea, etc. From next year, we would like to start crab fishing under the motherboat system and drag-net fishing in the Northern Pacific Ocean.

"2. As measures for small and medium-scale fishing industrialists and other minor fishermen, we deem it essential to carry out further rationalization of their enterprises. The Agriculture-Forestry Ministry is now contemplating to adopt a system of credit funds for the fishery industry.

"3. To preserve natural resources of marine products, it is necessary for the Government to take such measures as reduction or reconditioning of fishing craft. In addition, it is of high importance to conduct positive surveys of natural marine resources."

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FISHERY CIRCLES CONCERNED OVER TUNA EXPORT SITUATION: "Fishery circles are growing anxious over the anticipated lull in tuna export to the United States in the next six months, reports *Nihon Keizai*," according to an item in the Japanese press (*Kyodo*, July 31) as reported by an American Embassy dispatch from Tokyo.

"Japan has already exported more than 11,000 tons of the 12,000-ton frozen tuna export goal for the United States. The speedy export has been due to the favorable albacore catch in June.

"Fishery circles, therefore, fear that spearfish catches (which include tuna) to be brought back soon from equatorial waters and albacore to be taken after November will not find their way abroad. These fish do not sell well in domestic markets.

"The only ray of hope is for the United States to increase Japanese tuna import, with spearfish catch in the United States this year expected to reach only half the usual amount.

"Japanese frozen tuna exports to the United States aggregated 16,000 tons last year. The export volume this year, however, was kept down to 12,000 tons because of the United States' plan for higher tariff on imported tuna," the news report says.

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THREE-WAY TRADING IN TUNA EXPORTS BEING INVESTIGATED: The Japanese Government is investigating whether frozen tuna is being shipped from Japan to the United States via Canada to by-pass the Japanese limitation on tuna exports to the United States. This investigation was reported in the Japanese press (Suisan Tsushin, July 28) and confirmed by an official of the Government, a July 31 American Embassy dispatch from Tokyo states.

Japanese regulations specify quotas and check prices on exports of fresh and frozen tuna to the United States. Regulations on frozen tuna do not presently apply to Canada. Check prices on canned tunado apply both to the United States and Canada. The Government (Ministry of International Trade and Industry and the Ministry of Agriculture and Forestry--the latter includes the Fisheries Agency) and the tuna industry have been aroused over recent reports that shipments of tuna were being earmarked for the United States by three-way trading; Japanese firm to Canadian firm, hence to an American firm.

The newspaper report states in part: "At the time when we are particularly concerned about the disposition of the balance of 12,000 tons, the maximum export quantity on frozen tuna, and 10,900 tons already shipped, a Canadian company is reported to have contracted for 1,000 to 2,000 tons of frozen tuna to be shipped to Vancouver and the company applied for a license to ship 500 tons. MITI (Ministry of International Trade and Industry) did not accept it, but referred the matter to the Canadian Embassy and is investigating the actual status."

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EXPORT PERMITS REQUIRED FOR CERTAIN CANNED FISHERY PRODUCTS: Canned crab, salmon, salmon trout, and oysters have been designated by the Japanese Ministry of International Trade and Industry as items requiring permission to export. Controls have been imposed on these products in order to prevent possible dumping on certain markets, according to a June 25 Tokyo report quoted by the Canadian Department of Trade and Commerce in its publication Foreign Trade (July 19, 1952).

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NORTH PACIFIC MOTHERSHIP WHALING OPERATIONS: The licensing of North Pacific mothership whaling operations were announced by the Japanese Fisheries Agency on July 8, according to an American Embassy dispatch of that date from Tokyo. The

operations will consist of one mothership (Baikal Maru, 4,744 gross tons), 4 catcher boats, and 8 carriers. The goal is 350 baleen whales. The area of operations will be the high seas north of 46° N. latitude in the North Pacific, including the Bering Sea. The period of operations will be July 15-September 30.

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ALBACORE TUNA LANDINGS AND EX-VESSEL PRICES: Approximately 26,063 metric tons of "summer" albacore tuna were landed in Japan in May and June this year

(May 3,883 tons, June 22,180 tons), according to a special survey of the leading tuna ports (Yaizu, Shimizu, Misaki, and Tok) by the Japanese Fisheries Agency. Albacore landings have dropped with the end of the season and fishermen have shifted to skipjack tuna fishing, reports an American Embassy dispatch from Tokyo.

The approximate maximum cold-storage capacity available during the "summer" albacore season (May through July) is 15,790 metric tons. Cold-storage holdings of albacore on July 1 totaled 11,900 tons.



CUTTING TABLE IN A TUNA CANNERY IN HIROSHIMA, JAPAN.

JAPANESE ALBACORE TUNA EX-VESSEL PRICES						
Date	Yen per Kan			U. S. \$ per Short Ton		
	Maximum	Minimum	Average	Maximum	Minimum	Average
May 1	445	435	440	299	293	296
May 15	450	350	400	303	235	269
June 1	315	170	190	212	114	128
June 15	285	105	195	192	71	131
July 1	200	90	145	135	61	98

NOTE: 360 JAPANESE YEN EQUAL US\$1.00; 1 KAN EQUALS 8.26 POUNDS.

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TRAWLERS TO RESUME OPERATIONS IN SOUTH CHINA SEAS: The Japanese Fisheries Agency has approved an application for Japanese trawlers to resume operations in some prewar areas of the South China Sea. On July 24, the Agency approved the application of a Japanese company to send 3 pairs of 2-boat trawlers and 2 otter trawlers to the South China Sea. The Agency issued special licenses for the fishing in this region, states a July 20 American Embassy dispatch from Tokyo.

The license requires that:

1. Fishing be confined within the area south of 25° N. latitude, north of 15° N. latitude, and west of 121° E. longitude (temporarily west of 118° N. longitude).

2. No operations will be conducted in territorial waters (3 miles) of foreign countries.

3. The fishing boats will not put into any foreign ports for supplies, fuel, etc.

4. The catch cannot be transferred at sea. The catch must be brought to Japan by the fishing vessels engaged in the operations.

The license expires June 30, 1953.

Each pair of 2-boat trawlers is expected to make 3 trips by October 24, 1952. A catch of 3,000 boxes (1 box = 57.8 pounds of fish) per trip is anticipated for each pair of 2-boat trawlers. The 2 otter trawlers are expected to make a combined total of 5 trips by October 1953. The catch per trip for each otter trawler is expected to be 7,000 boxes.

Units of this fishing fleet were expected to sail about July 27.

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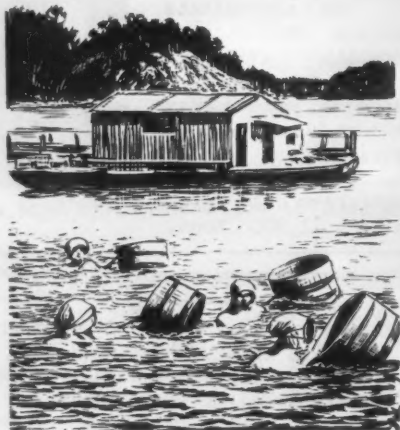
GREAT PEARL OYSTER REGULATIONS: The Japanese Government has applied regulations to fishing operations for the black lip pearl oyster and certain other mollusks. On July 8 the Japanese Fisheries Agency, Ministry of Agriculture and Forestry, announced the Ministry will require licenses for the collection of the great pearl oyster (black lip), silver lip (gold lip), brown top-shell, striped top-shell, great winged Avicula, and the green snail. The regulations apply to boats over 20 gross tons and will include restrictions on size limits, catch limits, and fishing season, states a July 14 American Embassy report from Tokyo.

In prewar years, much of the Japanese fishing for these species was in the equatorial waters, including the Arafura Sea.

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PLANNED REDUCTION IN NUMBER OF SMALL TRAWLERS: The Japanese Fisheries Agency plans to continue reducing the number of small trawlers. As reported in the Japanese press (*Suisan Tsushin*, July 5) and confirmed by the Fisheries Agency, 1,687 boats will be eliminated from the trawling fisheries during the fiscal year ending March 31, 1953. A total of 233 small trawlers were removed last year. These reductions are part of a program to reduce the small trawler fleet from the total of 36,644 boats in 1951 to 27,830 boats (67,774 gross tons) within the 5-year period ending April 1, 1956. The program is aimed at correcting overfishing and improving the economic condition of fishermen, declares a July 14 American Embassy dispatch from Tokyo.

The Japanese Fisheries Agency originally planned to reduce this fleet to 20,000 boats. This plan has been modified to permit the retention of small hand- or sail-powered boats dragging for shellfish. Owners of boats deleted from the trawl fisheries receive compensation in accordance with a fixed standard of eval-



DIVING FOR PEARL OYSTERS

uation of boats. Crew members also receive a form of unemployment compensation if loss of work results from this reduction in the number of boats. Boats subject to removal from the trawl fisheries are either sunk, converted to other types of fishing, or other non-fishing operations. The reduction will be widespread throughout Japan.

The Agency recognizes the need for effective policing of the small trawler fleet to insure that boats earmarked for removal are actually deleted from the fleet and that they or other replacements do not re-enter the trawling fisheries to necessitate a repetition of the reduction in the future.

JAPANESE GOVERNMENT



Norway

DEVELOPMENT OF FROZEN FISH INDUSTRY: When modern deep-freezing of fish began to gain ground some years ago, it was clear at once that this was the solution to the problem of how to send Norwegian fish to consumers in all parts of the world, according to an article which appeared in a special 1952 Norway Edition of World Fish Trade.

The modern deep-freezing technique is a comparatively new conserving method in Norway. In the 1930's there were few who carried on the freezing of fish fillets. But the expansion of freezing installations was speeded up just before and in the first two years after World War II.

The modern deep-freezing industry is now very well developed in Norway. The freezing plants are established in favorable positions in relation to the fishing areas along the Norwegian coast, and new plants are under construction. Various kinds of freezing equipment are used.

Today almost all the usual types of fish caught along the coast are used for producing frozen fish fillets. As the markets have developed, it has become clear that it is possible to sell most types of fish.

Frozen fish fillets are packed in the following three types of cartons:

1. 1 lb. carton with guaranteed net weight; 24 cartons to an export carton.
2. Inner carton containing 5 lbs. net with 6 cello-wrapped pieces in each box; 8 of these 5-lb. cartons to an export carton containing 40 lbs. net.
3. Inner carton of 10 lbs. with 10 to 12 cello-wrapped pieces; 4 cartons to an export carton.

During and particularly since the war, a considerable number of small specialized vessels with freezing machinery have been built for the transport of frozen fish fillets. A number of liner companies have also installed freezing rooms in their ships. For overland shipment, specially constructed railway cars are used. The frozen fillets are thus transported either by ship or rail from the stores in Norway to the stores abroad.

The world market has so far shown a constantly increasing interest in frozen foodstuffs, so that the development of the "freezing-chain" in the various markets has proceeded at great speed. In certain markets Norway has taken the initiative in this development.

To solve the various distribution problems and secure utmost efficiency, the Norwegian fish freezers decided in 1947 to form their own export organization. All the producers of frozen fish and fillets in Norway are now members of this cooperative organization. It was formed on a voluntary basis and the capital is contributed by the individual freezing plants and some banks and insurance companies.

Since it started, the organization has exported frozen fillets to a number of European and overseas markets and sales have been secured for all kinds of fish. Experience so far shows that the sale of Norwegian frozen fillets is developing very satisfactorily.

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NORTH NORWAY'S FISHING INDUSTRY DEVELOPMENT PLAN PROGRESSES: As part of the program for the economic development of North Norway, plans are being made to increase the facilities for fish drying and processing, to increase repair facilities for smaller ships, and possibly to build small plants to make fishing boat engines, states a July 7 American consular report from Oslo. Three million kroner (about US\$420,000) have been allotted for experimental fishing boats; the same amount for water works to provide fresh running water in homes and fish-packing plants; and two and one half million kroner (about \$350,000) to establish service stations for fishermen in Finmark.

NOTE: ALSO SEE COMMERCIAL FISHERIES REVIEW, MARCH 1952, P. 47.

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BLUEFIN-TUNA FISHERY HAS PROMISING BEGINNING: The bluefin-tuna fishery off Norway has had a promising beginning, according to Fiskaren (July 16), a Norwegian trade paper. One purse seiner took 213 large tuna in a single set. Tuna prices have been fixed at 1.42 kroner per kilo (9 U.S. cents per pound) on the grounds, and 1.57 kroner (10 U.S. cents per pound) delivered to the freezers.

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LOWER 1952 OUTPUT OF MARINE OILS FORECAST: Norway's production of marine oils in 1952 is expected to be somewhat below the 1951 volume of around 320,000 short tons, reports the American Embassy, Oslo. The decrease in 1952 is expected to occur principally in herring-oil production which is estimated at about 77,000 tons, as compared with the all-time record output of 88,200 tons (revised) in 1951. Cod-liver oil output is expected to be the same as in 1951 when some 12,300 tons were produced. Total production of all fish-liver oils in 1951 reached the all-time high of 16,400 tons as compared with 10,200 tons in 1950.

Norwegian whale and sperm oil production during the 1951-52 Antarctic season and from the Norwegian shore station at Husvik Harbor, South Georgia, totaled 211,400 tons. This is slightly more than the 208,400 tons produced during the preceding season. Production of whale and sperm oil from shore-based operations in Norway probably will approximate the 2,760 tons produced in 1951. It is not known whether Norway will again engage in sperm whaling off the coast of Peru. Some 3,670 tons of sperm oil was produced from whales caught in those waters by Norway in 1951.

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FISHING VESSEL ON DEMONSTRATION TOUR TO SOUTH AFRICA: A Norwegian cutter-type fishing vessel (60 feet long, 18½ feet wide, and with a cargo capacity of

72 tons) is ready to start a demonstration tour to South Africa, according to the April 16 issue of Fiskaren, Norwegian trade paper. It is equipped with a 150 hp. motor, and has a hydraulic winch, radiotelephone, and echo sounder. Among its fishing gear are purse seines for herring and small tuna. The crew numbers 10.

The vessel will fish along the African coast with its primary purpose being to demonstrate and increase the export of Norwegian fishing craft and equipment. It will visit Lisbon, Dakar, Freetown, and Angola on the projected 9-month tour.



Seychelles Islands

FISHERIES SCHEME FAILS: The Colonial Development Corporation has given notice that two fishing vessels of 300 gross tons each utilized in the Seychelles fishing scheme are for sale, according to a July 7 American consular dispatch from Mombasa, Kenya. The Isle of Saint Anne and the Isle of Silhouette have been brought to Mombasa to be sold; the third ship engaged in the fishing scheme, the Isle of Maho, will be used as a freighter on the Mogadishu-Beira run, with occasional trips to the Seychelles.

Although officials of the Corporation have made no definite statements as to the future of the fishing scheme, they have declared that the Corporation lost £28,000 (US\$78,610) during the first six months of operations. Bad weather which interfered with fishing, the high cost of manning the vessels with European officers, and repairs to the ships were mainly responsible for this loss. These officials also stated that the Corporation has been unable to find a market sufficient to support the operating expenses of the fleet. There is a considerable demand for dried fish in the Seychelles, but because of competition from small local suppliers prices are low and the corporation income from this source proved too small to meet expenses. One Corporation official said that, largely because of high fuel prices, the cost of getting to the fishing grounds and returning was "prohibitive for the type of markets we were serving," and admitted that "the whole scheme was uneconomical."

It is reported that the drying sheds on the Isle of Saint Anne, which can process 20 metric tons of fish at a time, are now operating at less than 10 percent of their capacity and are entirely dependent upon fish caught near the Islands from canoes and small dhows.

The Corporation may carry on some fishing in the future using small Seychelles craft to supply fresh fish to the islands of that group.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, JUNE 1951, PP. 75-6.



Union of South Africa

U. S. IMPORTANT MARKET FOR SPINY LOBSTERS: The spiny lobster industry in the Union of South Africa has made substantial progress in marketing its products in the United States despite restrictions since 1947 by the South African Government on exports of canned and frozen spiny lobster for conservation purposes.

United States imports of spiny lobster from South Africa in 1951 totaled 6,836,000 pounds (including 5,444,000 pounds of frozen and 1,392,000 pounds of

canned), according to the U. S. Bureau of the Census. Imports in 1946 amounted to only 2,564,000 pounds (all frozen).

The Union of South Africa in the year ended October 31, 1951, produced approximately 6,300,000 pounds of canned spiny lobster tails.

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NEW FISHERY BYPRODUCTS DEVELOPED: Waste-water residue or stickwater of the whale-rendering industry can be spray-dried into a powder rich in proteins and containing B-group vitamins, the South African Council for Industrial and Scientific Research announced early this year, the March 1952 World Fish Trade reports.

The Council has also established that whale liver provides the same liver extract that is obtained from the livers of domestic and other animals. Whale-liver extract contains vitamin E₁₂, which is most valuable for combating pernicious anaemia.

Since South Africa has an annual catch of about 1,000 whales, it is reported that the raw material for these new byproducts is readily available.

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FISH OIL OUTPUT SHOWS RAPID EXPANSION: Production of crude fish-body oil in the Union of South Africa and in South West Africa is expected to reach 22,400 short tons during the 1952 season now in progress as compared with 17,420 tons in 1951 and 11,340 tons in 1950, according to an American consular dispatch from Capetown.

Based on returns during the 1951 season and taking into consideration projected plant expansion (particularly in the Walvis Bay area, South-West Africa), combined production in 1953 may approach 28,000 tons.

Most important among the factors responsible for the sharp rise in production in 1951 were an expanded fishing fleet manned by more experienced crews, an exceptionally good season at Walvis Bay, improved fishing techniques, and the increased use of more modern equipment, including ship-to-shore radio and echo-sounding gear. The reduction plant capacity also was increased during the year to reach 200 tons of raw fish per hour in the Union of South Africa and 65 tons per hour at Walvis Bay.

The export of crude fish-body oil from the Union was under embargo in 1951 because demand exceeded supply. Exports (subject to permit) of refined oil amounted to approximately 1,620 tons in 1951, the bulk of which was destined to Italy, the United Kingdom, the Netherlands, Australia, and Germany.

The shortage of fish oils in the Union in 1951 was due, in part, to the comparatively high prices of vegetable oils, fats, and tallow on the world market. Priced at £70 per long ton (US\$175 per short ton) f.o.r. Vrendenberg (iodine content 180 units), fish-body oil became a popular substitute for the foregoing commodities. Wholesale prices are fixed yearly by the Fish Body Oil Producers' Association, subject to Government approval. No change in crude oil prices from 1951 is anticipated during the current year.

Prices of marine drying oils are substantially higher this year than in 1951, ranging from £103-5-0 to £150-10-0 (US\$289-\$421) per short ton, f.o.r. Simonstown for the local market and from £123-5-0 to £170-10-0 (US\$345-\$477) c.i.f. European ports on the export market.

United Kingdom

CANNED TUNA PURCHASES: Canned tuna purchases by the United Kingdom from South America were reported in the June 28, 1952, issue of the British periodical, The Grocer, according to an American Embassy dispatch from London.

When the Reina del Pacifico arrived in the Mersey on June 20, it brought 25,000 cases (1,250,000 cans) of canned tuna (probably bonito) from Peru and Chile--a food item destined to fill the gap caused by the great decline in canned red salmon deliveries.

Before World War II, the people of the United Kingdom were the world's biggest consumer of red salmon accounting for 43,000 tons a year, but since then only about 3,700 tons a year have been imported.

Canned tuna has been given a trial in Scotland, Ulster, and Wales, and the present consignment--the largest shipment of the kind to the United Kingdom--will, it is hoped, eventually lead to the replacement of a lost Liverpool industry.

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BRITISH TO INVESTIGATE FISHERIES OFF GREENLAND: A series of investigations to determine the possibilities of waters off the east coast of Greenland as fishing grounds is to be made by the Scottish fisheries research vessel Scotia, which is being sent out by the Scottish Home Department in September this year. The findings of this cruise will be considered together with those of the English research vessel Ernest Holt, which is also to make a survey voyage, states the April 19 issue of The Fishing News, a British fishery periodical.

The Scotia will take echo soundings of the sea bed to determine its suitability for trawling and will record the temperature structure of the water, which has an important influence on the distribution of fish. The voyage is expected to last several weeks, and will be the longest ever undertaken by a Scottish research vessel.



International

NORTHWEST ATLANTIC FISHERIES COMMISSION

PANEL 1 MEETING: A meeting of the panel for Subarea 1 will be held at Copenhagen immediately following the 50th anniversary meeting of the International Council for the Exploration of the Sea. The International Commission for the Northwest Atlantic Fisheries Panel 1 one-day meeting will be held at Charlottenlund Slot, Copenhagen, October 8, 1952.

The Contracting Governments participating in the Panel will be represented at the meeting by Commissioners, who may be assisted by experts or advisers. The Contracting Governments, as of August 8, 1952, are Canada, Denmark, Iceland, Norway, Portugal, Spain, United Kingdom, and United States. Of these, Denmark, Norway, Portugal, Spain, and United Kingdom are members of the Panel for Subarea 1 (Greenland).



Included in the agenda is consideration of a long-term research program and cooperation in carrying through the 1953 program in Subarea 1; review of fisheries statistics for Subarea 1 and a consideration of ways and means of improving them for the purposes of the Commission; and formulation and adoption of recommendations to the Commission.

FOOD AND AGRICULTURE ORGANIZATION

FISHERIES STATISTICS MEETING: The first meeting of its kind on the subject "Purposes and Methods of "Fishery Statistics" convened in Copenhagen, Denmark, on May 26. It was called by the Food and Agriculture Organization for the purpose of discussing statistical problems of the various member countries as well as those of the FAO in the international field.

Delegates from 15 countries and observers from 2 international organizations attended: Belgium, Canada, Costa Rica, Denmark, Egypt, Faeroe Islands, Finland, France, Federal Republic of Germany, Italy, Netherlands, Norway, Sweden, United Kingdom, and the United States of America; and the International Council for the Exploration of the Sea and the International Commission for the Northwest Atlantic Fisheries.



The fishing industry of the United States should be particularly interested in the results of this meeting as the information obtained through the FAO from foreign countries is one of the few direct benefits received by it from this organization. With present conditions in the industry throughout the world, everyone connected with the production or distribution of fishery products should be interested in obtaining as much current data on both the domestic and foreign fisheries.

During the discussion, particular emphasis was placed on the need for appraising the data in the light of its intended use. It was felt that wider use of the data now available could profitably be made and that additional information should be obtained on some subjects.

A number of delegates described the collection of statistics in their respective countries with emphasis on the more unique aspects.

Several delegates noted that the only country in which daily market data are furnished by the Government is the United States. Everyone felt that this type of information was extremely valuable, but there was considerable doubt whether available funds would permit its use in other countries.

In France, a Central Committee on Maritime Fisheries represents the industry in dealing with the Governmental agencies. In order to speed up the publication of fishery statistics this committee handles part of the compilation and publication of the data.

In Norway, a permanent fishing vessel register is maintained by the Norwegian Fishery Directorate. This register contains information on the registration number, name and address of owner, size of vessel, type and make of engine, horsepower, type of vessel, auxiliary equipment (depth recorders, radar, etc.), date of building, date of rebuilding, and similar data. The original information and changes, when necessary must be furnished to the local or district supervisor. Fishery administrators from continental European nations were generally in agreement that a registry of all fishing vessels was of vital interest, particularly in showing the "fleet potential" of both the vessels actually fishing and those which were registered for fishing but were not active. They felt that it would be prac-

tically impossible to manage their fisheries without it, because of the intensive fishing and limited markets.

Discussions on the use of sampling in fishery statistics evoked a rather general agreement that sampling did not appear to be a satisfactory means of collecting production statistics, but that it could be advantageously used in many other fields, both biological and economic.

Consideration of the use of preliminary data and estimates resulted in agreement that, particularly for economic usage, they were of great value although every effort should be made to have final figures available as soon as possible.

The following excerpts from the report of the drafting committee summarizes some of the results of the meeting:...

Various authors submitted their papers to the meeting. Some of the papers were circulated in advance, others were made available at the meeting. These were supplemented by statements by the authors and other speakers during the course of the meeting, which were recorded for inclusion in the final report. It was agreed that the FAO secretariat should be asked to bring all the papers and supplementary papers into the final report which will cover all the points raised.

Clearly this meeting could not deal with all the many problems of fishery statistics. It was therefore decided to focus attention on some outstanding aspects.

The need for statistics: The maintenance and development of world fisheries require statistical services which are based on the following broad principles: (a) Basic accuracy; (b) International comparability; (c) Coordination at various stages - catching, handling (including processing), and distribution; (d) Proper and timely presentation.

The meeting was of the opinion that such statistics should be directed towards the needs of the administration, the industry, and biological and economic research. While some countries already have evolved a system of statistics which goes a long way towards these objectives, it is felt that in no case have all the requirements been met. In all statistical services, the efficiency could be improved by a more frequent review of their purpose, and this would involve closer contact between the users of the statistics and those responsible for their compilation.

In addition to the statistics which are required for international use, which will be dealt with later in this report, it was recognized that each country must provide statistics to meet its own domestic needs, but that here also the services of the FAO Fisheries Division may be of great assistance. In order to improve the use of the collected material, FAO could be of further help in disseminating information on the methods of economic analysis.

Catch Statistics: While it was agreed that various methods of collecting statistics, adapted to the conditions of each country must continue to be used the meeting felt that the exchange of information afforded by the papers and discussions should prove of great value to each country in any re-organization or extension of its statistical services which might be contemplated. For example, the use of du-

plicate catch receipt slips, as given to fishermen at first-hand sales, has worked efficiently where practicable, but it was recognized that this method would not be applicable in some countries or incertain circumstances.

The importance of obtaining information as to fishing grounds and fishing effort, i.e. the method and duration of fishing, was stressed, and it was recommended that in the interests of the efficiency of the industry and the preservation of the stocks of fish, this information should be collected as completely as possible.

Wherever possible, details of the catch of every species of fish landed should be collected, and it was agreed that where fish is landed in commercial size categories, it is desirable to record the quantities of each category separately.

Fishing Craft and "effort" statistics: It was recommended that greater attention should be paid to the collection of information about fishing craft, their equipment and crew. The three most important considerations are: (1) the method of fishing; (2) the method of propulsion, and power; and (3) length or gross registered tonnage; but further details of the vessels and their technical equipment should be obtained where possible.

It was noted that a number of European countries are already successfully operating some form of index for recording this information.

These particulars of the vessels and their equipment and gear, together with the detailed catch statistics for the various fishing operations, provide a basis for the calculation of fishing effort.

Trade Statistics: Trade statistics were considered under two heads: (1) external and (2) internal.

With regard to external trade statistics, the Meeting urged that the Statistical Commission of the United Nations should take account of the following recommendations when considering forthcoming reports of the United Nations Statistical Office on external trade:

(a) For purposes of comparability, the export and import figures, when reported to the Food and Agriculture Organization, should be shown in the same basis of weight as that used for the catches which, for international purposes, are converted

into round fresh weight. This would in most cases involve the use of conversion factors, and the first essential, therefore, is to determine and publish as complete a record as possible of the conversion factors.

(b) Direct landings by foreign craft should be separately recorded both by the country in which the fish is landed and by that to which the craft belongs.

While it was agreed that internal trade statistics are primarily of interest to the countries concerned, it was considered that in order to provide the necessary information as to food supplies and consumption data for FAO, every endeavor should be made to see that these internal trade statistics are complete and accurate. It was apparent that in every country this section of the statistics was insufficiently developed. The collection of figures relating to the stocks of fish products was not unanimously considered essential, but it was recognized that in certain countries, this special information is of great value. It was pointed out that the quantity of fish taken home by fishermen or caught by amateur fishermen for their own consumption is not included in the national consumption figures; in some countries the quantity, though it has not yet been estimated, is undoubtedly considerable. A suggestion was made that statistical data should be made a basis for the forecasting of economic conditions in the fishing industry.

The Presentation of the Statistics: It was agreed that although each country must frame its statistics to meet the needs of its own administration and industry, it would be of advantage if the special requirements of FAO could, where possible, be incorporated. Further, as the value of the statistics is greatly increased by timely presentation, it was recommended that both domestic material and that required by FAO should be available at the earliest possible moment. Especially in the case of figures for domestic purposes, this may sometimes involve the issue of provisional figures.

FAO Questionnaire, and External Trade Classification: These subjects were considered by a special panel, and its recommendations, which have been accepted by the Conference, are given in the appendix.

Conclusion: This Conference was the first occasion on which the problems of fishery statistics have been considered on so wide an international basis. It afforded a unique opportunity to review not only the statistical requirements of the individual countries represented, but also those of the Food and Agriculture Organization of the United Nations. The full outcome of the conference may not be apparent for some time, but it was evident that a careful study was being made of the papers on many different aspects of fishery statistics which had been submitted and that careful consideration would be given in all countries to the recommendations for improvement and extension of the statistical services.

Appendix B

List of Documents

Collection of Fishery Statistics, England and Wales, by J. le G. Lacy.

General Notes on Purpose and Methods in Developing Fisheries Statistics, by G. M. Gerhardsen.

Fishing Fleet Statistics of the Federal Republic of Germany, by G. Meseck.

The Statistical Requirements of the International Commission for the Northwest Atlantic Fisheries, by W. R. Martin.

Statistics on Marketing and Processing of Sea Fish in Western Germany, by O. Bauer.

Le Role Present et le Role Futur des Statistiques Economiques des Peches Maritimes, by J. M. Besseteaux.

International Comparability of Statistics on the External Trade in Fisheries Commodities, by L. P. D. Gertenbach.

The Norwegian Register of Fishing Craft and Statistics based on the Register, by H. Angeraman.

Les Besoins en Statistiques de l'Industrie des Peches, by J. le Garrec.

The Biologists' Needs for Fisheries Statistics, by A. W. H. Needler.

Statistics on the Fishing Fleets, by H. J. Girard.

Long Term Trends with Special Reference to the United States, by A. W. Anderson.

Development of Fishery Statistics in the Management of Philippine Fisheries, by B. Ongchangco.

The Commercial Fishing Statistics Required for Research and Regulation of the North Sea Fisheries, by R. J. H. Beverton.

Notes on Conversion Factors in Fisheries Statistical Work, by G. M. Gerhardsen and L. P. D. Gertenbach.

The Statistical Work of the International Council for Exploration of the Sea in Retrospect, by N. Rosen.

Essais de Coordination des Donnees Statistiques Destinees a etre publiees dans l'Annuaire Statistique des Peches de la FAO, by Ch. Gilis.

Appendix to preceding paper: Methode de travail permettant l'analyse de la statistique de la peche Maritime.

Fishery Statistics Necessary for Predictions of Catches and for Determinations of the Optimal Catches, by As. I. C. Jensen.

The Importance of Statistics for the Export of Fish, by F. F. Erichsen.

The Reorganization of Denmark's Fisheries Statistics, by A. C. Strubberg.

L'Etablissement de Statistique sur la Peche en Italie et les difficultes resultant de la dispersion des marches det des centres de production, by R. Cusmai and G. Bezzuoli.

Statistics on Fish Market Investigations, by D. J. van Dijk.

The Collection of Pelagic Fish Statistics, by E. B. Parrish.

Fisheries Commodities, by FAO Fisheries Division.

A Short Report on the Egyptian Fisheries, by M. Hegazi.

Statement on External Trade Statistics, by W. R. Leonard.

Comments on the FAO Questionnaire on Catch, Landings, Disposition and Utilization, by G. Cartwright.

Collection of Data and Statistical Investigations of the Italian Fishery, by The Central Institute of Statistics, Rome.

Swedish Fisheries Statistics - Existing organization and planned improvements, by O. Zetterberg.

Sea Fishery Statistics in the Federal Republic of Germany, by G. Hess.

Collection of Fishery Statistics, The Netherlands, by Netherlands Delegation.

Notes on Statistical Treatment of Fish in Food Balance Sheets, by FAO Fisheries Division.

Note on Document 7 "International Comparability of Statistics on the External Trade in Fisheries Commodities," by Netherlands Delegation.

Appendix C

The FAO Questionnaire: The group considered the latest version of the FAO questionnaire for a preliminary report on catch, disposition, and utilization and suggests that FAO revise it along the following lines:

(a) The column for species group should be left blank so that countries can insert defined species groups in the order best suited to the available data.

(b) The columns on (i) landings and (ii) catch should be replaced by new ones providing for the presentation of raw fish data on (1) catch landed by domestic craft within the national territory (2) imports in the form of direct landings by foreign craft and those entering as cargo and boxed imports (3) exports. The disposition should be based on the total supplies retained for the home market.

(c) The columns for channels of disposition are satisfactory and should not be simplified.

(d) The columns for "cured" products should not be left vacant but FAO should consult with the fisheries experts in those 20 or so countries which regularly complete the questionnaire in adequate detail, as to the four or so most acceptable clearly defined "cured" categories.

(e) The definition of "canned" should be in accord with the Standard International Trade Classification.

(f) The species breakdown for the table on oils and meals should be reduced to the 3 or 4 that are of significance in this industry.

(g) The breakdown of "oils" should be reviewed and it might be better to state clearly that the "body oils" columns include both edible and inedible oils.

Trade Classification: It is suggested that the secretariat of FAO should further consult the UN Statistical Office and reach a mutually acceptable breakdown for the minimum groupings to be used by FAO and submit the revised proposals to countries for comment after study at leisure.

The last paragraph of the report points out some of the intangible results of the meeting. Certain revisions in the FAO statistical publications will result from the meeting, and a number of the member countries may make changes in their national fishery statistics in line with ideas presented at the meeting. Any improvements in these foreign and international statistics will be of benefit to the U. S. Government and to the fishing industry.

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MEDITERRANEAN FISHERIES COUNCIL AGREEMENT ACCEPTED BY FRANCE: The Government of France has accepted the Agreement drafted in Rome, Italy, on September 24, 1949, for the formation of a General Fisheries Council for the Mediterranean. Notification was received by the Food and Agriculture Organization on July 8, 1952, and France became a member of the Council as of that date.

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"WORLD FISHERIES ABSTRACTS" INAUGURATES NEW SERVICE: From now on any fisheries technologist requiring FAO's World Fisheries Abstracts and who has had difficulties in obtaining it in the past may acquire his subscription free in exchange for technical information, states a March 26 release from the FAO Rome headquarters. All that is necessary is to write a letter to F.A.O., Viale delle

Terme di Caracalla, Rome, Italy, expressing interest and willingness to contribute to FAO information on special subjects which may be asked for from time to time. Such non-confidential information may be incorporated in the work of FAO, its documents, and publications.

Because of currency difficulties, many people have been prevented from subscribing to the periodical. To solve this problem, FAO has worked out a plan so that there is a fair exchange between readers and publishers--a free subscription to the periodical in exchange for information. Practical fishermen, boatowners, and fish processors as well as scientists, often have practical hints and experiences that can help fishermen and processors all over the world. These are screened and published by FAO.

The purpose of the World Fisheries Abstracts is to give fishermen, boatowners, fish processors, canners, and curers a brief but up-to-date resume of the most recent developments in their fields. The abstracts are designed to be cut out of the book and filed alphabetically or by subject for use at a future date.

WHALING

SPERM OIL OUTPUT IN 1952 EXPECTED TO DECREASE: World production of sperm oil in 1952 is expected to fall substantially below the record 1951 output of 118,000 short tons, according to information available to the Office of Foreign Agricultural Relations. Although the production of sperm oil from the 1951-1952 Antarctic season reached 53,600 tons, or 12 percent above the preceding season, production in other areas is expected to drop sharply. The fall in oil prices and lagging sales are expected to discourage many companies from operating outside the Antarctic in 1952.

The record output of sperm oil in 1951 was due to the sharp demand created by the international situation which practically eliminated stocks of this product in 1950. A large number of the sperm whales killed in 1951 were taken in waters off the coast of Peru. Factoryships operating in this area produced some 36,500 tons of oil, whereas in 1950 no factoryships operated in this region.

Whale-oil production (excluding sperm oil) from all areas in 1952 is expected to increase slightly. Antarctic production in 1951-52 totaled 408,000 tons, an increase of 6 percent from last year.

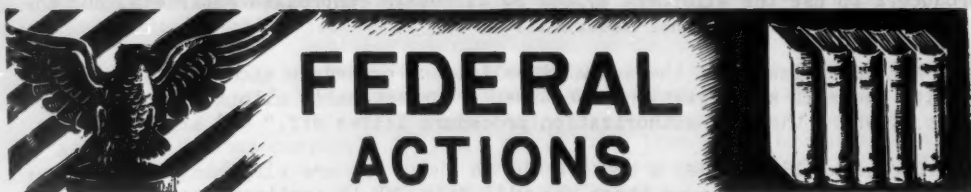
TEXAS LANDINGS OF FISHERY PRODUCTS

DO YOU KNOW THAT....

Texas during the 1950-51 fiscal year (September 1950-August 1951) produced 81,216,823 pounds of fish and shellfish--5 percent less than the 85,243,237 pounds landed in the previous fiscal year. A considerable increase in shrimp production was more than offset by a substantial drop in menhaden landings.

Shrimp (heads on) landings during the 1950-51 fiscal year amounted to 51,333,000 pounds as compared with 37,883,308 pounds during the previous year. However, menhaden landings during that year totaled 26,880,240 pounds as compared with 44,085,842 pounds during the previous year.

Texas Landings, C.F.S. No. 675



Department of Commerce

NATIONAL PRODUCTION AUTHORITY

AUTOMATIC ALLOTMENT PROCEDURE FOR CONTROLLED MATERIALS ANNOUNCED BY NPA:

The creation of an automatic-allotment procedure designed to benefit approximately 10,000 manufacturers of "B" products beginning with the first quarter of 1953 was announced recently by the National Production Authority. This will particularly assist such groups in the fishing industry as shipyards, ship-repair yards, and manufacturers of fishing equipment.

In announcing this step, effective August 11, 1952, NPA said that these producers may calculate their own allotments and obtain necessary priority assistance in procuring controlled materials without submitting CMP-4B applications. The large majority of small businesses will not have to file applications for allotments of controlled materials; however, NPA will still process individual CMP-4B applications which will account for approximately 85 percent of carbon steel.

NPA revealed that tentative levels for automatic allotments of copper and aluminum for the first quarter 1953 are set at 100 percent of third quarter 1952 allotments--up to 40,000 pounds of copper and 60,000 pounds of aluminum. However, as a result of the loss in production sustained during the steel strike, first quarter 1953 allotments of carbon steel under the automatic-allotment procedure will not permit any additions to the already authorized advance allotment level, which is 60 percent of the third quarter 1952 quantities. At the same time, NPA stressed that these tentative steel allotments may have to be revised downward when analysis of the first quarter 1953 requirements and supply is completed and the full impact of the eight-week steel strike is appraised.

These are the actions taken by NPA:

1. A new Direction 18 to CMP Regulation 1 which provides the automatic-allotment procedure for certain "B" product producers who received third quarter 1952 allotments. Such producers are told how to calculate their own allotments. Direction 18 requires them to use the same allotment symbol they used to obtain materials for third quarter 1952.
2. Amendment 2 to Direction 1 of CMP Regulation 1 establishes a cut-off date of December 31, 1952, for the use of the current self-authorization procedure and provides that it shall not be used after the fourth quarter of 1952.
3. A new Direction 17 to CMP Regulation 1 stipulates that, beginning with the first quarter of 1953, a producer of "B" products, who did not receive third quarter 1952 allotments on a CMP-4B application, may self-authorize purchase orders only if his total requirements of controlled materials do not exceed 25 tons of carbon steel, one ton of alloy steel, 500 pounds of nickel-bearing stainless steel, 10,000 pounds of copper, and 20,000 pounds of aluminum. It permits such

producers to use the allotment symbol SU to obtain controlled materials, and the rating DO-SU to secure other materials.

NPA emphasized that the automatic-allotment procedure should not be confused with the self-authorization procedure. "The automatic allotment procedure takes up where the self-authorization procedure leaves off," NPA explained.

Direction 18 provides a small bonus to those who are eligible for the automatic-allotment method over those who will file CMP-4B applications. For example, it permits producers who use the automatic-allotment procedure to receive 100 percent of the first 60 tons of carbon steel, plus 60 percent of the excess between that tonnage and 500 tons.

Under the automatic-allotment procedure, a producer may calculate his own allotments and place purchase orders without submitting a CMP-4B application to NPA for any calendar quarter if his total third quarter 1952 allotment of each kind of controlled material did not exceed the following amounts:

Carbon steel (including wrought iron)-	500 tons
Alloy steel (except nickel-bearing stainless)	- 90 tons
Nickel-bearing stainless steel	- 10,000 pounds
Copper and copper-base alloy brass mill products, copper wire mill products, copper and copper-base alloy foundry products and powder	- 40,000 pounds
Aluminum	- 60,000 pounds

The amount he calculates as his allotment does not take into consideration the fourth quarter 1952 carry-over quantities of controlled materials which many manufacturers also will receive during the first calendar quarter 1953.

"Although the review of the first quarter 1953 requirements and supply position has not been completed," NPA reports, "we felt it was necessary to take this action at the same time the first quarter 1953 CMP-4B forms were distributed so as to provide the necessary information to the manufacturers who will be relieved of filing applications for allotments."

Furthermore, the automatic-allotment method will be very helpful to these producers who will know each quarter the amount of their allotments without waiting for authorization from NPA.

For details see: Direction 17 (Self-authorization procedure for producers of class B products) to CMP Regulation 1; Amendment 2 Direction 1 (Procedures for obtaining minimum quantities of materials by producers of class B products) to CMP Regulation 1; Direction 18 (Automatic allotment procedure for producers of class B products) to CMP Regulation 1; and news release NPA-2477; all dated August 11, 1952.

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INVENTORY CONTROLS ON CERTAIN MATERIALS REVISED: Inventory controls were removed from more than 50 widely-varied commodities by the National Production Authority on July 23 in a major revision of its basic inventory regulation. Some materials of interest to the fishery and allied industries are included.

The amendment to NPA Regulation 1 is intended to make the order current by reflecting changes in the supply-demand situation of materials since April 1952,

date of the last large-scale revision of the order. The regulation covers all short-supply items not subject to restrictions of the Controlled Materials Plan.

It is anticipated, NPA said, that the amendment will enable a large portion of the Nation's industrial economy to return to normal inventory practices.

A number of items currently in short supply have been added to the revised order. These materials now are subject to the inventory controls of the amended regulation.

Designation of Scarce Materials 1 (formerly Notice 1) has been revised to conform with amended NPA Regulation 1. This lists scarce materials which are subject to the anti-hoarding provisions of the Defense Production Act.

For details see: DSM-1 (Designation of Scarce Materials and Withdrawal of Previous Designation) as amended; NPA Regulation 1 (Inventory Control) as amended; and press release NPA-2430; all dated July 23, 1952. Also List of Basic Materials and Alternates Issue No. 7 issued by the Defense Production Administration on July 8.

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SULPHURIC ACID ORDER M-94 REVOKED: Of interest particularly to producers of fish solubles will be the action of NPA in revoking Order M-94 (Sulphuric acid) effective August 18, 1952. The revocation, which lifts distribution controls on sulphuric acid, was made possible because the supply and demand for sulphuric acid now appear to be in approximate balance. Order M-94 was originally issued December 29, 1951, to prevent serious maldistribution of sulphuric acid and required producers to maintain the same ratio between sales and captive use of total production of sulphuric acid which they maintained in 1950.

The revocation of M-94 does not imply that elemental sulphur is no longer in short supply. Sulphur consumption is governed by Order N-69 which restricts sulphur use to 90 percent of 1950 usage and which continues to remain in effect.

For details see: M-94 (Sulfuric Acid) Revocation, dated August 18, 1952, and news release NPA-2510 of August 19, 1952.

NOTE: FULL TEXTS OF MATERIALS ORDERS MAY BE OBTAINED FROM NATIONAL PRODUCTION AUTHORITY, WASHINGTON 25, D. C., OR FROM ANY DEPARTMENT OF COMMERCE REGIONAL OR FIELD OFFICE.



Economic Stabilization Agency

SALARY STABILIZATION BOARD

SALARY REGULATION 1 AMENDED: General Salary Stabilization Regulation 1, Amended, was issued by the Salary Stabilization Board on August 18, incorporating changes required by the Defense Production Act Amendments of 1952 and including substantive changes in policy.

Changes required by law include the salary exemption for "small-business enterprises." Substantive changes in policy include new provisions relating to compensation for a regularly extended workweek. In addition, this amendment of GSSR 1 combines in one document all salary stabilization policies relating to general adjustments in salaries, adjustments to maintain compensation relationships between groups of employees and to avoid hardships and inequities, and adjustments

for individual employees in the form of merit or length-of-service increases, promotions, transfers, and other changes in position.

For details see: GSSR 1, Amended.



Department of the Interior

KASK APPOINTED TO TWO INTERNATIONAL COMMISSIONS: Dr. John L. Kask, Assistant Director of the U. S. Fish and Wildlife Service, has been appointed by the President as a United States member of the Inter-American Tropical Tuna Commission and the International Commission for the Scientific Investigation of Tuna, the Secretary of the Interior Oscar L. Chapman announced in August.

On both of these Commissions Kask succeeds Milton C. James who retired as the Service's assistant director on March 31 of this year.

Kask is now in Costa Rica to attend the fourth meeting of the Inter-American Tropical Tuna Commission being held in San Jose from August 13 to 15.

These Commissions were established by conventions between the United States and Costa Rica and the United States and Mexico. Both were set up to make a joint study of certain tuna fisheries, namely yellowfin and skipjack, and related coastal bait fisheries, in the tropical waters of the eastern Pacific Ocean, "with a view to maintaining the populations of these fishes at a level which will permit utilization year after year without depletion."



DR. JOHN L. KASK

The Mexican convention was signed at Mexico City on January 25, 1949, and entered into force on July 11, 1950. The Costa Rica convention was signed at Washington on May 31, 1949, and entered into force on March 3, 1950. This agreement is open to adherence by other interested governments.

* * * * *

WHALING REGULATIONS PUBLISHED: The Schedule of the Convention for the Regulation of Whaling as last amended by the International Whaling Commission in July 1951, was published in the August 28, 1952, issue of the Federal Register. The Whaling Convention Act of 1949, the legislation implementing the International Convention for the Regulation of Whaling, provides that regulations of the Commission shall be published by the Secretary of the Interior. The regulations as published in the Federal Register follow.

PART 351—WHALING

Basis and purpose. The Whaling Convention Act of 1949 (64 Stat. 421-425; 16 U. S. C., 1946 ed., Supp. IV, 916-9161), the legislation implementing the International Convention for the Regulation of Whaling signed at Washington December 2, 1946, by the United States of America and certain other governments, provides that regulations of the Commission (defined to mean the whaling

regulations in the Schedule annexed to and constituting a part of the Convention in their original form or as modified, revised, or amended by the Commission) shall be submitted for publication in the FEDERAL REGISTER by the Secretary of the Interior. The provisions of the Schedule have been edited to conform the numbering, internal references, and similar items to regulations of the Administrative Committee of the Federal Register, but no changes have been made in the

substantive provisions. As so edited, the Schedule of the Convention as last amended by the Commission in July 1951, pursuant to Article V of the Convention appears below. The provisions of the Schedule are applicable to nationals and whaling enterprises of the United States.

Sec.	Inspection.
\$51.1	Killing of gray or right whales prohibited.
\$51.2	Killing of calves or suckling whales prohibited.
\$51.3	

- Sec.
 351.4 Operations of factory ships limited.
 351.5 Closed areas for factory ships.
 351.6 Limitation on the taking of humpback whales.
 351.7 Closed season for baleen whales.
 351.8 Catch quota for baleen whales.
 351.9 Minimum size limits.
 351.10 Open seasons for land stations.
 351.11 Use of factory ship in waters other than south of 40° South Latitude.
 351.12 Complete processing required.
 351.13 Prompt processing required.
 351.14 Remuneration of employees.
 351.15 Submission of laws and regulations.
 351.16 Submission of statistical data.
 351.17 Factory ship operations within territorial waters.
 351.18 Definitions.

AUTHORITY: §§ 351.1 to 351.18 are issued under 64 Stat. 421-425; 16 U. S. C. 916-918.

§ 351.1 *Inspection.* (a) There shall be maintained on each factory ship at least two inspectors of whaling for the purpose of maintaining twenty-four hour inspection. These inspectors shall be appointed and paid by the Government having jurisdiction over the factory ship.

(b) Adequate inspection shall be maintained at each land station. The inspectors serving at each land station shall be appointed and paid by the Government having jurisdiction over the land station.

§ 351.2 *Killing of gray or right whales prohibited.* It is forbidden to take or kill gray whales or right whales, except when the meat and products of such whales are to be used exclusively for local consumption by the aborigines.

§ 351.3 *Killing of calves or suckling whales prohibited.* It is forbidden to take or kill calves or suckling whales or female whales which are accompanied by calves or suckling whales.

§ 351.4 *Operations of factory ships limited.* It is forbidden to use a factory ship or whale catcher attached thereto for the purpose of taking or treating baleen whales in any of the following areas:

(a) In waters north of 66° North Latitude except that from 150° East Longitude eastward as far as 140° West Longitude the taking or killing of baleen whales by a factory ship or whale catcher shall be permitted between 66° North Latitude and 72° North Latitude;

(b) In the Atlantic Ocean and its dependent waters north of 40° South Latitude;

(c) In the Pacific Ocean and its dependent waters east of 150° West Longitude between 40° South Latitude and 35° North Latitude;

(d) In the Pacific Ocean and its dependent waters west of 150° West Longitude between 40° South Latitude and 20° North Latitude;

(e) In the Indian Ocean and its dependent waters north of 40° South Latitude.

§ 351.5 *Closed areas for factory ships.* It is forbidden to use a factory ship or a whale catcher attached thereto for the purpose of taking or treating baleen whales in the waters south of 40° South Latitude from 70° West Longitude westward as far as 160° West Longitude.

§ 351.6 *Limitation on the taking of humpback whales.* It is forbidden to use a factory ship or a whale catcher attached thereto for the purpose of taking or treating humpback whales in any waters south of 40° South Latitude: *Provided*, That in the pelagic whaling season for baleen whales, 1952, a maximum of 1,250 humpback whales may be taken in these waters commencing on February 1st.

§ 351.7 *Closed season for baleen whales.* (a) It is forbidden to use a factory ship or a whale catcher attached thereto for the purpose of taking or treating baleen whales in any waters south of 40° South Latitude, except during the period from the second day of January to the seventh day of April following, both days inclusive.

(b) Each Contracting Government shall declare for all factory ships and whale catchers attached thereto under its jurisdiction, one continuous open season not to exceed eight months out of any period of twelve months during which the taking or treating of sperm whales by factory ships may be permitted: *Provided*, That a separate open season may be declared for each factory ship.

(c) Notwithstanding the prohibition of treatment in paragraphs (a) and (b) of this section during a closed season, the treatment of whales which have been taken during the open season may be completed after the end of the open season.

§ 351.8 *Catch quota for baleen whales.* (a) The number of baleen whales taken during the open season caught in any waters south of 40° South Latitude by whale catchers attached to factory ships under the jurisdiction of the Contracting Governments shall not exceed sixteen thousand blue-whale units.

(b) For the purposes of paragraph (a) of this section, blue-whale units shall be calculated on the basis that one blue whale equals:

- (1) Two fin whales; or
- (2) Two and a half humpback whales; or
- (3) Six sei whales.

(c) Notification shall be given in accordance with Article VII of the Convention, within two days after the end of each calendar week, of data on the number of blue-whale units taken in any waters south of 40° South Latitude by all whale catchers attached to factory ships under the jurisdiction of each Contracting Government; and in addition notification of data on the number of humpback whales taken in pursuance of § 351.6, including nil returns on days when no humpback whales are taken, shall be given at the end of each day.

(d) If it should appear that the maximum catch of whales permitted by paragraph (a) of this section may be reached before the seventh day of April, of any year, the Commission, or such other body as the Commission may designate, shall determine on the basis of the data provided, the date on which the maximum catch of whales shall be deemed to have been reached and shall notify each contracting Government of

that date not less than two weeks in advance thereof. The taking of baleen whales by whale catchers attached to factory ships shall be illegal in any waters south of 40° South Latitude after midnight of the date so determined.

(e) On the basis of data on number of humpback whales taken in accordance with the provisions of § 351.6 and reported in accordance with paragraph (c) of this section, the Commission, or such other body as the Commission may designate, shall determine the date on which the maximum catch of humpback whales shall be deemed to have been reached and shall notify each factory ship and each contracting Government three days in advance thereof. The taking of humpback whales in all waters south of 40° South Latitude shall be illegal after midnight of the date so determined.

(f) Notification shall be given in accordance with the provisions of Article VII of the Convention of each factory ship intending to engage in whaling operations in any waters south of 40° South Latitude.

§ 351.9 *Minimum size limits.* (a) It is forbidden to take or kill any blue, sei, or humpback whales below the following lengths:

- (1) Blue whales 70 feet (21.3 metres);
- (2) Sei whales 40 feet (12.2 metres);
- (3) Humpback whales 35 feet (10.7 metres).

Except that blue whales of not less than 65 feet (19.8 metres), and sei whales of not less than 35 feet (10.7 metres) in length may be taken for delivery to land stations: *Provided*, That the meat of such whales is to be used for local consumption as human or animal food.

(b) It is forbidden to take or kill any fin whales below 60 feet (18.3 metres) in length for delivery to factory ships or land stations in the southern hemisphere, and it is forbidden to take or kill fin whales below 55 feet (16.8 metres) for delivery to factory ships and land stations in the northern hemisphere; except that fin whales of not less than 55 feet (16.8 metres) may be taken for delivery to land stations in the southern hemisphere and fin whales of not less than 50 feet (15.2 metres) may be taken for delivery to land stations in the northern hemisphere provided in each case that the meat of such whales is to be used for local consumption as human or animal food.

(c) It is forbidden to take or kill any sperm whales below 38 feet (11.6 metres) in length, except that sperm whales of not less than 35 feet (10.7 metres) in length may be taken for delivery to land stations.

(d) Whales must be measured when at rest on deck or platform, as accurately as possible by means of a steel tape measure fitted at the zero end with a spiked handle which can be stuck into the deck planking abreast of one end of the whale. The tape measure shall be stretched in a straight line parallel with the whale's body and read abreast the other end of the whale. The ends of the whale, for measurement purposes, shall be the point of the upper jaw and the notch between the tail flukes. Measurements,

after being accurately read on the tape measure, shall be logged to the nearest foot: That is to say, any whale between 75' 6" and 76' 6" shall be logged as 76' and any whale between 76' 6" and 77' 6" shall be logged as 77'. The measurement of any whale which falls on an exact half foot shall be logged at the next half foot, e. g. 76' 6" precisely, shall be logged as 77'.

§ 351.10 Open seasons for land stations. (a) It is forbidden to use a land station under the jurisdiction of a contracting Government, and whale catchers attached to such land station, for the taking or treating of baleen and sperm whales, except as permitted by the contracting Government in accordance with paragraphs (b), (c), and (d) of this section.

(b) Each contracting Government shall declare for all land stations under its jurisdiction, and whale catchers attached to such land stations, one open season during which the taking or treating of baleen (excluding minke) whales shall be permitted. Such open season shall be for a period of not more than six consecutive months in any period of twelve months and shall apply to all land stations under the jurisdiction of a contracting Government, provided that a separate open season may be declared for any land station used for the taking or treating of baleen (excluding minke) whales which is more than 1,000 miles from the nearest land station used for the taking or treating of baleen (excluding minke) whales under the jurisdiction of the same contracting Government.

(c) Each contracting Government shall declare for all land stations under its jurisdiction and for whale catchers attached to such land stations, one open season not to exceed eight continuous months in any one period of twelve months, during which the taking or treating of sperm whales shall be permitted, such period of eight months to include the whole of the period of six months declared for baleen whales as provided for in paragraph (b) of this section: *Provided*, That a separate open season may be declared for any land station used for the taking or treating of sperm whales which is more than 1,000 miles from the nearest land station used for the taking or treating of sperm whales under the jurisdiction of the same contracting Government.

(d) Each contracting Government shall declare for all land stations under its jurisdiction and for all whale catchers one open season not to exceed six continuous months in any period of twelve months during which the taking or treating of minke whales shall be permitted (such period not being necessarily concurrent with the period declared for other baleen whales, as provided for in paragraph (b) of this section): *Provided*, That a separate open season may be declared for any land station used for the taking or treating of minke whales which is more than 1,000 miles from the nearest land station used for the taking or treating of minke whales under the jurisdiction of the same contracting Government.

(e) Notwithstanding the provisions of paragraphs (a), (b), (c), and (d) of this section, the treatment of whales which have been taken during an open season may be completed after the end of such open season.

(f) The prohibitions contained in this paragraph shall apply to all land stations as defined in Article II of the Whaling Convention of 1946 and to all factory ships which are subject to the regulations governing the operation of land stations under the provisions of § 351.17.

§ 351.11 Use of factory ship in waters other than south of 40° South Latitude. It is forbidden to use a factory ship, which has been used during a season in any waters south of 40° South Latitude for the purpose of treating baleen whales, in any other area for the same purpose within a period of one year from the termination of that season.

§ 351.12 Complete processing required. (a) All whales (except minke whales) taken shall be delivered to the factory ship or land station and all parts of such whales shall be processed by boiling or otherwise, except the internal organs, whalebone and flippers of all whales, the meat of sperm whales and of parts of whales intended for human food or feeding animals.

(b) Complete treatment of the carcasses of "Dauhval" and of whales used as fenders will not be required in cases where the meat or bone of such whales is in bad condition.

§ 351.13 Prompt processing required. (a) The taking of whales for delivery to a factory ship shall be so regulated or restricted by the master or person in charge of the factory ship that no whale carcass (except of a whale used as a fender, which shall be processed as soon as is reasonably practicable) shall remain in the sea for a longer period than thirty-three hours from the time of killing to the time when it is hauled up for treatment.

(b) Whales taken by all whale catchers, whether for factory ships or land stations, shall be clearly marked so as to identify the catcher and to indicate the order of catching.

(c) All whale catchers operating in conjunction with a factory ship shall report by radio to the factory ship:

- (1) The time when each whale is taken;
- (2) Its species; and
- (3) Its marking effected pursuant to paragraph (b) of this section.

(d) The information reported by radio pursuant to paragraph (c) of this section shall be entered immediately in a permanent record which shall be available at all times for examination by the whaling inspectors; and in addition there shall be entered in such permanent record the following information as soon as it becomes available. (1) Time of hauling up for treatment, (2) length, measured pursuant to § 351.9 (d), (3) sex, (4) if female, whether milk-filled or lactating, (5) length and sex of foetus, if present, and (6) a full explanation of each infraction.

(e) A record similar to that described in paragraph (d) of this section shall be maintained by land stations, and all of the information mentioned in the said paragraph shall be entered therein as soon as available.

§ 351.14 Remuneration of employees. Gunners and crews of factory ships, land stations, and whale catchers shall be engaged on such terms that their remuneration shall depend to a considerable extent upon such factors as the species, size, and yield of whales taken, and not merely upon the number of the whales taken. No bonus or other remuneration shall be paid to the gunners or crews of whale catchers in respect of the taking of milk-filled or lactating whales.

§ 351.15 Submission of laws and regulations. Copies of all official laws and regulations relating to whales and whaling and changes in such laws and regulations shall be transmitted to the Commission.

§ 351.16 Submission of statistical data. (a) Notification shall be given in accordance with the provisions of Article VII of the Convention with regard to all factory ships and land stations of statistical information (1) concerning the number of whales of each species taken, the number thereof lost, and the number treated at each factory ship or land station, and (2) as to the aggregate amounts of oil of each grade and quantities of meal, fertilizer (guano), and other products derived from them, together with (3) particulars with respect to each whale treated in the factory ship or land station as to the date and approximate latitude and longitude of taking, the species and sex of the whale, its length and, if it contains a foetus, the length and sex, if ascertainable, of the foetus. The data referred to in subparagraphs (1) and (3) of this paragraph shall be verified at the time of the tally and there shall also be notification to the Commission of any information which may be collected or obtained concerning the calving grounds and migration routes of whales.

(b) In communicating this information there shall be specified:

- (1) The name and gross tonnage of each factory ship;
- (2) The number and aggregate gross tonnage of the whale catchers;
- (3) A list of the land stations which were in operation during the period concerned.

§ 351.17 Factory ship operations within territorial waters. (a) A factory ship which operates solely within territorial waters in one of the areas specified in paragraph (c) of this section, by permission of the Government having jurisdiction over those waters, and which flies the flag of that Government shall, while so operating, be subject to the regulations governing the operation of land stations and not to the regulations governing the operation of factory ships.

(b) Such factory ship shall not, within a period of one year from the termination of the season in which she so operated, be used for the purpose of treating baleen whales in any of the

other areas specified in paragraph (c) of this section or south of 40° South Latitude.

(c) The areas referred to in paragraphs (a) and (b) of this section are:

(1) On the coast of Madagascar and its dependencies;

(2) On the west coasts of French Africa;

(3) On the coasts of Australia, namely on the whole east coast and on the west coast in the area known as Shark Bay and northward to Northwest Cape and including Exmouth Gulf and King George's Sound, including the Port of Albany.

§ 351.18 *Definitions.* The following expressions have the meanings respectively assigned to them, that is to say:

"Baleen whale" means any whale which has baleen or whale bone in the mouth, i. e., any whale other than a toothed whale.

"Blue whale" (*Balaenoptera* or *Sibbaldus musculus*) means any whale known

by the name of blue whale, Sibbald's rorqual, or sulphur bottom.

"Dauhval" means any unclaimed dead whale found floating.

"Fin whale" (*Balaenoptera physalus*) means any whale known by the name of common finback, common rorqual, finback, finner, fin whale, herring whale, razorback, or true fin whale.

"Gray whale" (*Rhachianectes glaucus*) means any whale known by the name of gray whale, California gray, devil fish, hard head, mussel digger, gray back, or rip sack.

"Humpback whale" (*Megaptera nodosa* or *novaeangliae*) means any whale known by the name of bunch, humpback, humpback whale, humpbacked whale, hump whale, or hunchbacked whale.

"Minke whale" (*Balaenoptera acutorostrata*, *B. davidsoni*, *B. huttoni*) means any whale known by the name of lesser rorqual, little piked whale, minke whale, pike-headed whale, or sharp headed finner.

"Right whale" (*Balaena mysticetus*;

Eubalaena glacialis, *E. australis*, etc.; *Neobalaena marginata*) means any whale known by the name Atlantic right whale, Arctic right whale, Biscayan right whale, bowhead, great polar whale, Greenland right whale, Greenland whale, Nordkaper, North Atlantic right whale, North Cape whale, Pacific right whale, pigmy right whale, Southern pigmy right whale, or Southern right whale.

"Sei whale" (*Balaenoptera borealis*) means any whale known by the name of sei whale, Rudolphi's rorqual, pollack whale, or coalfish whale and shall be taken to include Bryde's whale (*B. brydel*).

"Sperm whale" (*Physeter catodon*) means any whale known by the name of sperm whale, spermacet whale, cachalot, or pot whale.

"Toothed whale" means any whale which has teeth in the jaws.

Dated: August 21, 1952.

OSCAR L. CHAPMAN,
Secretary of the Interior.

FISH AND WILDLIFE SERVICE

SOUTHEASTERN ALASKA HERRING FISHERY QUOTA ELIMINATED: The retention of the present maximum quota of 100,000 barrels for Southeastern Alaska commercial herring catches is not required, the U. S. Fish and Wildlife Service announced by an amendment to the Alaska commercial fisheries regulations published in the Federal Register of August 8, 1952.

The full text of the amendment as it appeared in the Federal Register follows:

PART 116—SOUTHEASTERN ALASKA AREA FISHERIES OTHER THAN SALMON HERRING FISHERY

Basis and purpose. On the basis of information developed by field representatives of the Fish and Wildlife Service on the age composition of the commercial herring catches of Southeastern Alaska and the availability of the stocks

to the commercial fishery it has been determined that effective conservation of these fisheries does not require retention of the present maximum quota of 100,000 barrels.

It also appears that the maximum quota of 100,000 barrels probably will be filled this date.

In order to permit optimum utilization of these fisheries Part 116, South-

eastern Alaska Area Fisheries Other Than Salmon is amended in § 116.3 by deleting the first sentence of text.

This amendment shall be effective immediately.

(Sec. 1, 43 Stat. 464, as amended; 48 U. S. C. 221)

ALBERT M. DAY,
Director.



Department of State

REVISED UNITED STATES VENEZUELAN TRADE AGREEMENT INCREASES VENEZUELAN IMPORT DUTIES ON CERTAIN CANNED FISHERY PRODUCTS: A revised trade agreement, supplementing and superseding the original 1939 U. S.-Venezuelan Reciprocal Trade Agreement, was signed in Caracas, Venezuela, on August 29, 1952, by representatives of the two governments. Negotiation of the revised agreement by teams appointed by the respective governments was initiated in Caracas in April 1952 and concluded in Washington during August.

The new agreement results in an increase in the Venezuelan import duties on three fishery items in that nation's tariff schedules, the trade in which amounted to \$531,000 in 1950 and \$663,000 in 1951 in terms of United States exports to Venezuela. The rate on canned shellfish, while listed in the new agreement, has been

raised from the 1939 agreement rate to the most-favored-nation rate. Canned sardines and salmon, which were in the 1939 agreement, have been excluded from the new agreement.

Accordingly, the rate of duty on canned sardines imported into Venezuela will be increased from .28 bolivares per gross kilogram (about 3.8 U.S. cents per pound) to the most-favored-nation rate presently at 2.00 bolivares per gross kilogram (27.3 U.S. cents per pound). Likewise, the rate on canned salmon will be increased from .90 bolivares per gross kilogram (12.3 U.S. cents per pound) to 2.00 bolivares (27.3 U.S. cents per pound). The rate on canned shellfish will be increased from 1.50 bolivares per gross kilogram (20.5 U.S. cents per pound) to 2.00 bolivares per gross kilogram (27.3 U.S. cents per pound); but since this item is included in the agreement, it is bound against increase at 2.00 bolivares (27.3 U.S. cents per pound) and cannot exceed this rate.

The supplementary trade agreement revises some of the general provisions of the original 1939 agreement. The more important changes are (1) a revised provision under which tariff concessions are better protected against nullification or impairment by the use of quota restrictions, (2) a new reciprocal undertaking with regard to customs fees and formalities, and (3) the inclusion of the standard escape clause pursuant to section 6-b of the Trade Agreements Extension Act of 1951.

The effective date of the agreement will probably be early in October. A Presidential proclamation will be released as soon as the necessary documents can be prepared, at which time the effective date will be established.

The following table shows data on the fishery items which are affected:

Tariff No.	Brief Description	1939 Trade Agreement Rate	1952 Most-Favored-Nation Rate	1952 Trade Agreement Rate	United States Exports to Venezuela			
					1950		1951	
					lbs.	US\$	lbs.	US\$
3E	Sardines, canned	.28	2.00	-	2,111,000	332,000	2,447,326	413,038
3F	Shellfish, canned	1.50	2.00	2.00	167,000	142,000	197,406	166,404
3D	Salmon, canned	.90	2.00	-	98,000	57,000	119,521	83,847
						531,000		663,289

NOTE: ONE VENEZUELA BOLIVAR EQUALS ABOUT 30 U. S. CENTS. VENEZUELA MEASURES THE FULL WEIGHT OF A SHIPMENT, INCLUDING CANS AND CARTONS.

Under the 1939 agreement, preferential rates were given to imports into Venezuela for canned salmon, sardines, and shellfish. Venezuelan import duties on fish products were substantially increased effective March 1, 1951. This action was taken, according to reports from the U. S. Embassy in Caracas, to provide additional protection to the national fish-canning industry. The rates of duties were set at 2 bolivares per gross kilogram, except for those items contained in the 1939 trade agreement. The revised agreement succeeds in bringing the 1939 trade agreement items to the level sought by the industry for other fishery products.

Total Venezuelan concessions in the nature of reductions or bindings of rates of duty made in the revised agreement cover 179 agricultural and industrial items, having a trade value in 1950 of US\$241 million or approximately 62 percent of the value of United States exports to Venezuela.

As compared to the 1939 agreement, Venezuela grants new or improved concessions on US\$154 million of imports from the United States; on US\$12 million of imports they are withdrawing the 1939 concessions; and on US\$6 million of imports the new agreement provides for higher Venezuelan rates than in the 1939 agreement.

Under the 1939 agreement, only 35 percent of our exports were covered. The trade coverage of the 1939 agreement as supplemented by the new agreement is US\$240 million or about 60 percent of total United States exports to Venezuela.

Total United States concessions are valued at US\$314 million or 98 percent of the 1950 trade value of imports from Venezuela. Of the U.S. total, US\$288 million consists of crude petroleum and residual fuel oils, which accounted for 90 percent of the U.S. imports from Venezuela.

It is estimated that the 1950 value of trade on which United States granted improved customs treatment is about US\$175 million, of which practically all was crude petroleum and residual fuel oil.

No fishery items in the United States tariff are affected by this agreement.



OYSTERS ROCKEFELLER

Since September opens the fresh-oyster season in the Eastern States, the home-maker can again plan to use these delicately-flavored shellfish for family and party dinners.

Aside from having no waste and being easy to prepare, oysters are an excellent source of the "protective" nutrients--proteins, minerals, and vitamins. Few foods are better balanced nutritionally than oysters.



"Oysters Rockefeller" is one of the dishes that have made New Orleans cuisine known the world over. This dish had its origin in that city a number of years ago at world-famous Antoine's restaurant and was so named at once when a guest to whom it was being served exclaimed, "Rich as Rockefeller!"

Either Eastern or Pacific oysters may be used in this recipe, according to the home economists of the U. S. Fish and Wildlife Service.

OYSTERS ROCKEFELLER

- *36 SHELL OYSTERS
- 2 CUPS COOKED SPINACH
- 1/2 CUP ONION
- 2 BAY LEAVES
- 1 TABLESPOON PARSLEY

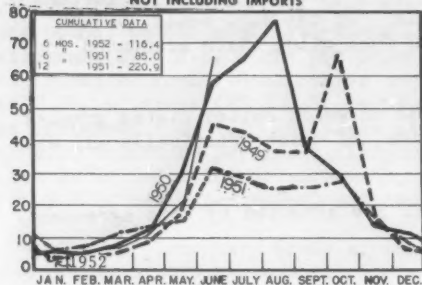
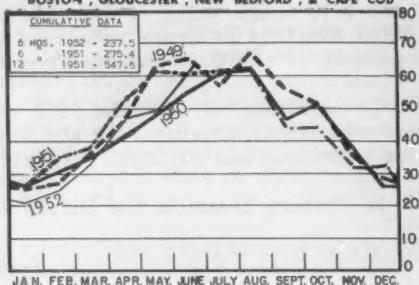
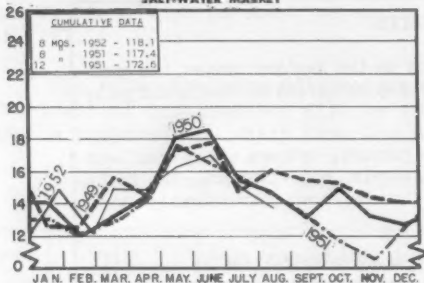
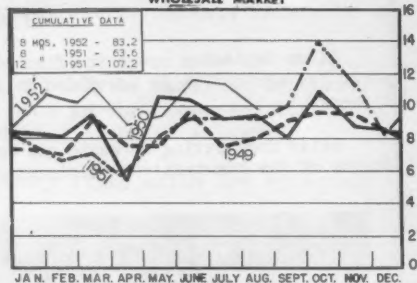
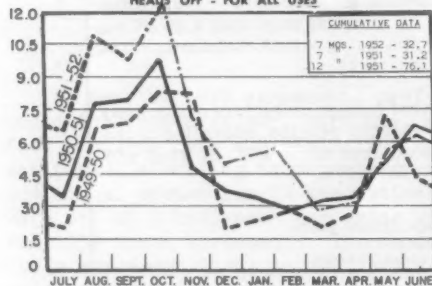
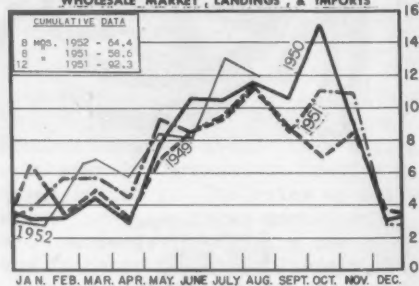
- 1/2 TEASPOON CELERY SALT
- 1/2 TEASPOON SALT
- 5 DROPS TABASCO SAUCE
- 6 TABLESPOONS BUTTER OR OTHER FAT, MELTED
- 1/2 CUP DRY BREAD CRUMBS

Shuck and drain oysters, place on deep half of shells. Put spinach, onion, bay leaves, and parsley through food grinder; add seasonings. Lightly brown in butter for about 5 minutes. Add bread crumbs; mix. Spread mixture over oysters. Bake in a hot oven, 400° F., for 10 to 15 minutes or until brown. Garnish with lemon slices. Serves 6.

*IF SHELL OYSTERS ARE NOT AVAILABLE, 1 1/2 PINTS OF SELECT SHUCKED OYSTERS MAY BE USED. DRAIN OYSTERS AND ARRANGE ON A SHALLOW, WELL-GREASED BAKING DISH; SPREAD WITH SPINACH MIXTURE, AND COOK AS ABOVE.

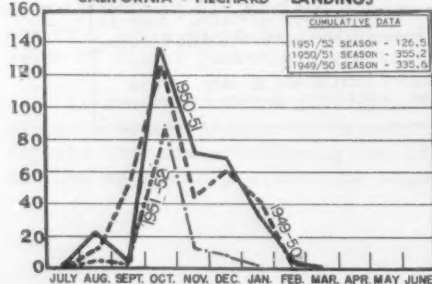
LANDINGS AND RECEIPTS

In Millions of Pounds

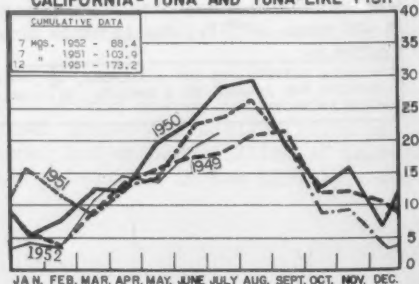
MAINE - LANDINGS
NOT INCLUDING IMPORTSMASSACHUSETTS - LANDINGS
BOSTON, GLOUCESTER, NEW BEDFORD, & CAPE CODNEW YORK CITY - RECEIPTS OF FRESH & FROZEN FISH
SALT-WATER MARKETCHICAGO - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKETGULF - SHRIMP LANDINGS
HEADS OFF - FOR ALL USESSEATTLE - RECEIPTS OF FRESH & FROZEN FISH
WHOLESALE MARKET, LANDINGS, & IMPORTS

In Thousands of Tons

CALIFORNIA - PILCHARD LANDINGS



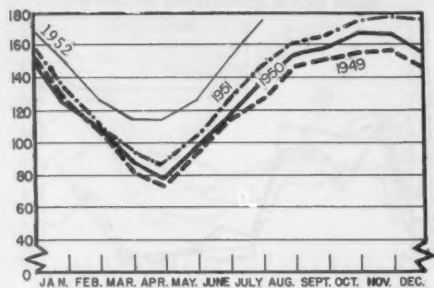
CALIFORNIA - TUNA AND TUNA-LIKE FISH



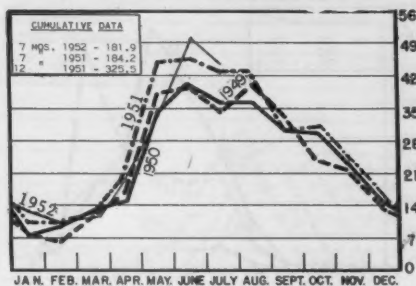
COLD STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS

in Millions of Pounds

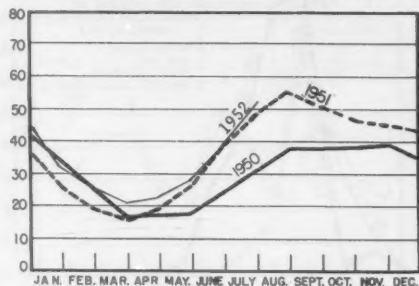
U.S. & ALASKA - HOLDINGS OF FROZEN FISH



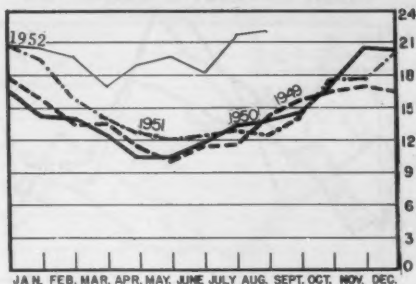
U.S. & ALASKA - FREEZINGS



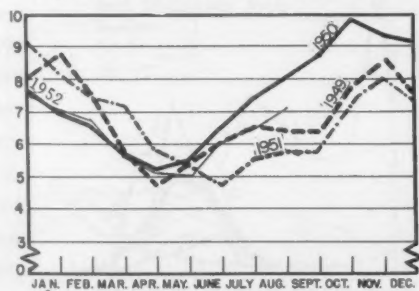
NEW ENGLAND - HOLDINGS OF FROZEN FISH



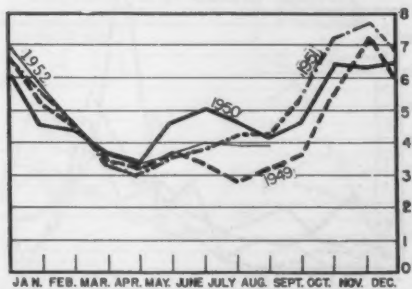
NEW YORK CITY - HOLDINGS OF FROZEN FISH



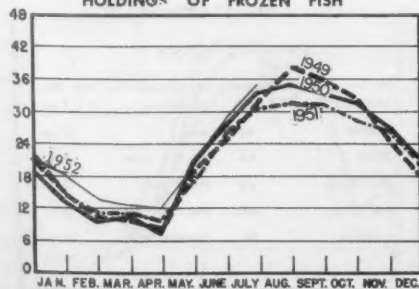
CHICAGO - HOLDINGS OF FROZEN FISH



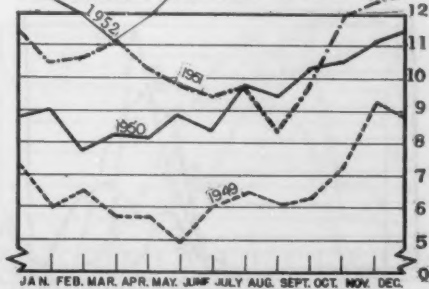
GULF - HOLDINGS OF FROZEN FISH



WASHINGTON, OREGON, AND ALASKA - HOLDINGS OF FROZEN FISH



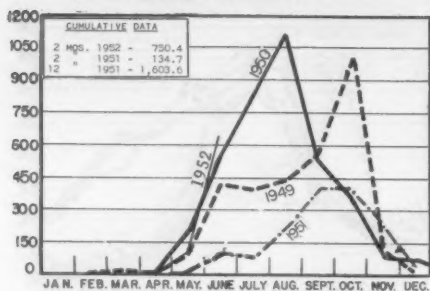
CALIFORNIA - HOLDINGS OF FROZEN FISH



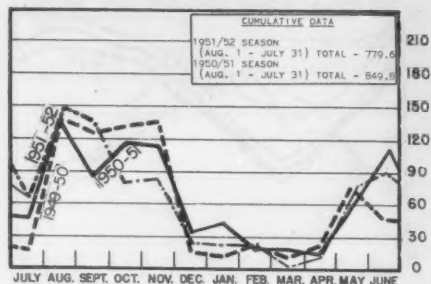
CANNED FISHERY PRODUCTS

In Thousands of Standard Cases

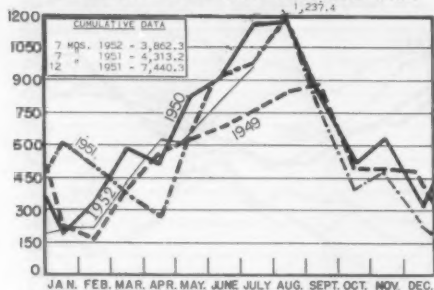
MAINE - SARDINES, ESTIMATED PACK



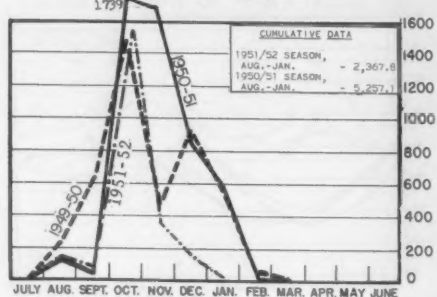
UNITED STATES - SHRIMP



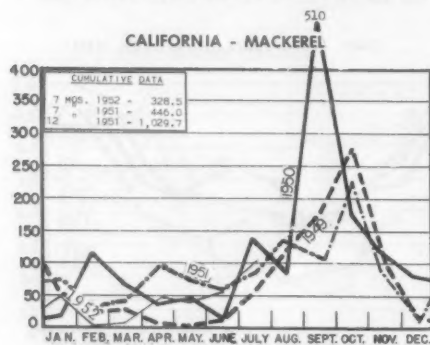
CALIFORNIA - TUNA AND TUNA-LIKE FISH



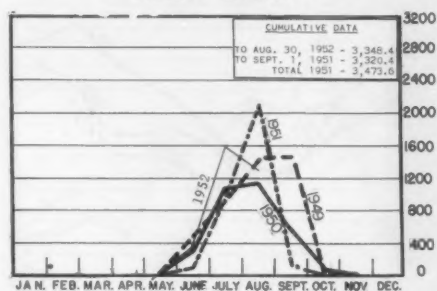
CALIFORNIA - PILCHARDS



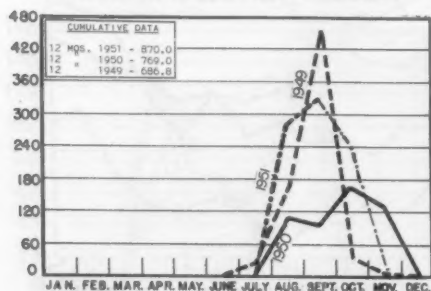
CALIFORNIA - MACKEREL



ALASKA - SALMON



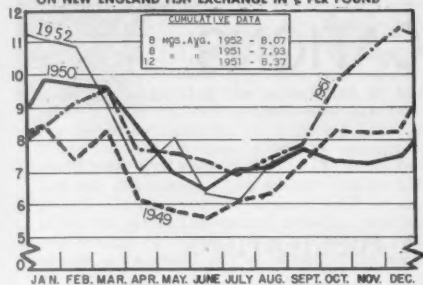
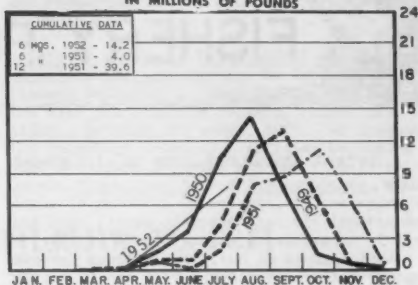
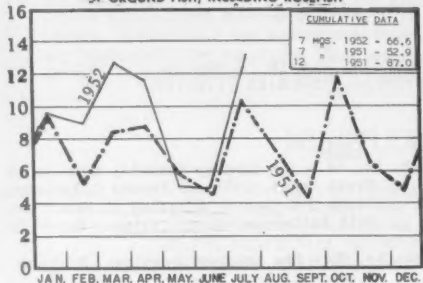
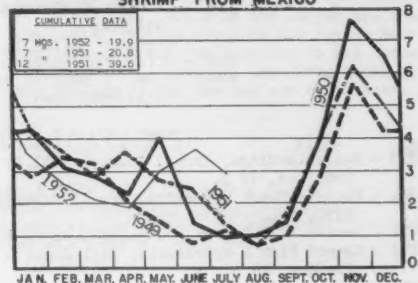
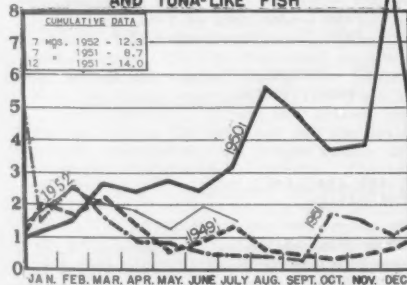
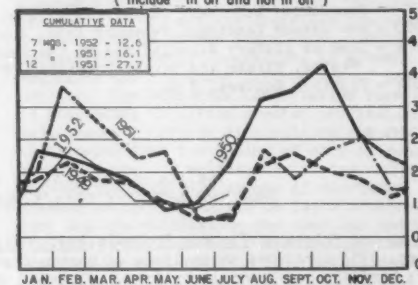
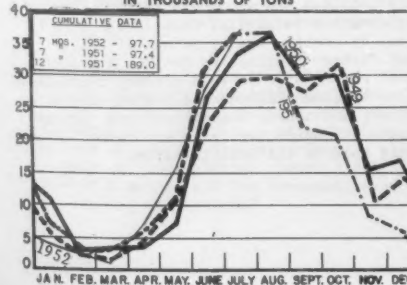
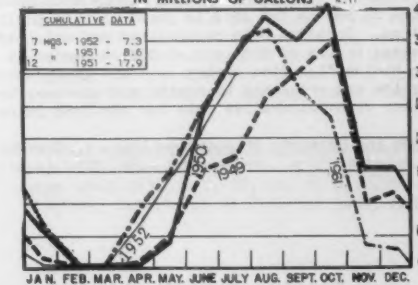
WASHINGTON - PUGET SOUND SALMON

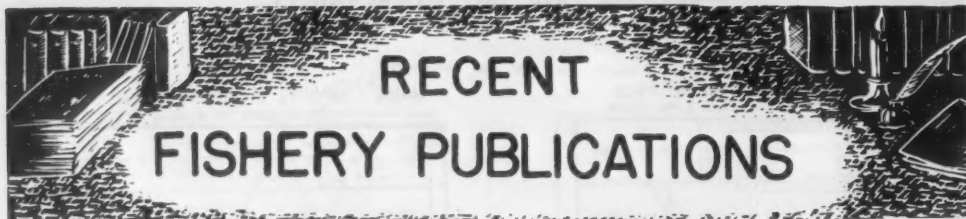


STANDARD CASES

Variety	No. Cans	Can Designation	Net. Wgt.
SARDINES	100	1/4 drawn	3 1/4 oz.
SHRIMP	48	—	7 oz.
TUNA	48	No. 1/2 tuna	7 oz.
PILCHARDS	48	No. 1 oval	15 oz.
MACKEREL	48	No. 300	15 oz.
SALMON	48	1-pound tall	16 oz.

PRICES, IMPORTS and BY-PRODUCTS

BOSTON - WEIGHTED AVERAGE PRICE
ON NEW ENGLAND FISH EXCHANGE IN ¢ PER POUNDMAINE - IMPORTS OF FRESH SEA HERRING
IN MILLIONS OF POUNDSU.S. - IMPORTS OF FRESH & FROZEN FILLETS
OF GROUND FISH, INCLUDING ROSEFISHU.S. - IMPORTS OF FRESH AND FROZEN
SHRIMP FROM MEXICOU.S. - IMPORTS OF CANNED TUNA
AND TUNA-LIKE FISHU.S. - IMPORTS OF CANNED SARDINES
(include in oil and not in oil)U.S. & ALASKA - PRODUCTION OF FISH MEAL
IN THOUSANDS OF TONSU.S. & ALASKA - PRODUCTION OF FISH OIL
IN MILLIONS OF GALLONS



Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

- CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.
 FL - FISHERY LEAFLETS.
 SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
 SSR. - FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number	Title
CFS-743	Maine Landings, Annual Summary 1951, By Counties, 12 p.
CFS-764	Pacific Coast Fisheries, Annual Summary 1950, 8 p.
CFS-771	Frozen Fish Report, July 1952, Final, 8 p.
CFS-772	Canned Fish & Byproducts, 1951 Annual Summary, 20 p.
CFS-775	Texas Landings, June 1952, 4 p.
CFS-776	Fish Meal and Oil, June 1952, 4 p.
CFS-777	Maine Landings, May 1952, 4 p.
CFS-778	Florida Landings, May 1952, 6 p.
CFS-779	New Jersey Landings, January 1952, 2 p.
CFS-780	New Jersey Landings, February 1952, 2 p.
FL -254	List of Fishery Associations in the United States, Alaska and Hawaii (revised), 8 p.
FL -404	Tilefish Recipes, 3 p.

Number	Title
SSR-Fish. No. 68	Sea Lamprey Spawning Runs in the Great Lakes, 1951, by Vernon C. Applegate, Bernard R. Smith, Alberton L. McLain and Matt Patterson, 40 p., illus., March 1952.
SSR-Fish. No. 70	Sea Lamprey Spawning: Michigan Streams of Lake Superior, by Howard A. Loeb and Albert E. Hall, Jr., 71 p., illus., February 1952.
Sep. No. 319	Georges Bank Haddock Fishery--1951. Part I--Analysis of 1951 Fishery. Part II--Accuracy of 1951 Prediction.
Sep. No. 320	Potential Markets for Alaska Salmon Cannery Waste.

THE FOLLOWING SERVICE PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED IN THE REVIEW.

Landings and Prices of Fishery Products, Boston Fish Pier, 1951 (Includes an Analysis of Boston Fishery Landings and Trends), by John J. O'Brien, 26 p., processed, August 1952. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) A review of the fish marketing trends and conditions in Boston for 1951 is found in this publication. Detailed data on landings and weighted average prices of fish and shellfish landed at the Boston Fish Pier during 1951 are given. Statistics are presented by months and species, together with comparative data for previous years.

Landings and Receipts at Seattle--1951, by Charles M. Reardon, 30 p., processed, July 1952. (Avail-

able free from the Market News Service, U. S. Fish and Wildlife Service, 421 Bell Street Terminal, Seattle 1, Washington.) This publication contains an article which reviews the Seattle fisheries trends and conditions for 1951. The balance of the report is made up of tables giving the landings and wholesale receipts (including approximate values) at Seattle for 1951 by species, by months, and by points of origin; halibut fishery landings by months; a monthly index of receipts of certain fishery products at Seattle; carload shipments of fishery products by months; and names, classifications, and approximate standards for fresh and frozen fishery products sold on the Seattle market.

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND
ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS,
WASHINGTON 25, D. C.

"Public Sentiment: An Important Factor in Fishery Management (with Special Reference to the St. Johns River and Lake Okeechobee, Florida)," by John F. Dequine, article, pp. 98-103, illus. (From The Progressive Fish-Culturist, vol. 14, no. 3, July 1952, processed.) The history of a controversy between sportsmen and commercial fishermen regarding the management of the fisheries of the St. Johns River and Lake Okeechobee, the major conclusions of a survey, recommendations for the management of the commercial fisheries, and the present status of Florida's problem are presented. The author states that "the modern fishery manager cannot confine his activities to gathering facts, drawing conclusions, and making recommendations. He must, in addition, become a salesman and an educator if he is to accomplish his objective, whether it be removal of an unnecessary regulation, adoption of a new program, or other. The problem of creating favorable public sentiment must be attacked with the same vigor and care applied to a fish-population analysis, a food-habits study, or a creel census. In Florida," the author continues, "fishery biologists are convinced that controlled commercial fishing operations form the only practi-

cal method available to provide more successful fishing trips and better utilization of the fishery resources of the State's large natural fresh waters."

Flounders of the Genus PARALICHTHYS and Related Genera in American Waters, by Isaac Ginsburg, Fishery Bulletin 71 (From Fishery Bulletin of the Fish and Wildlife Service, Volume 52), 88 p., illus., printed, 60 cents, 1952. An account of the important group of flatfishes belonging to the genus *Paralichthys*, and the closely related genera *Hippoglossina* and *Pseudorhombus*, which occur in American waters and, in the aggregate, are food fishes of great economic importance, is presented. Proportional measurements of the several species are given in tabular form. Analysis of the data reveals remarkable changes in form with growth, and changes in proportional measurements at different stages of growth. For example, medium-sized specimens of *Paralichthys albigutta* average a relatively deeper body than *P. lethostigma*, while in the larger specimens the latter species averages the deeper body. In addition to questions involved in the proper distinction of the species, the facts known about the biology of the species are summarized.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE AGENCIES OR PUBLISHERS MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

"Age and Length Composition of the Sardine Catchoff the Pacific Coast of the United States in 1951-52," by Frances E. Felin, Ray Anas, Anita E. Daugherty and Leo Pinkas, article, California Fish and Game, July 1952, vol. 38, no. 3, p. 427, printed. Department of Fish and Game, San Francisco, Calif. This is the sixth report on the age and length composition of the catch of sardine (*Sardinops caerulea*) off the Pacific Coast of North America. During the 1951-52 season there was no fishery for sardines off the British Columbia, Washington, and Oregon coasts and no interseason fishery in California. The tables, therefore, give length and age composition for the regular California fishing season only. Included are tables showing, by sex and region of catch, the length-frequency distributions of fish of each year class from the random scale samples taken in the 1951-52 season; the mean length and standard error of the mean for each year class sampled in the 1951-52 season, by sex and region of catch; the calendar dates for the lunar months in the season; and the numbers of fish, by region of catch and in each year class, caught during the season.

"Anybody Can Smoke Fish," by Herbert J. Fisher, article, Missouri Conservationist, June 1952, vol. 13, no. 6, pp. 12-13, illus., printed. Missouri Conservation Commission, Jefferson City, Missouri. Methods of smoking fish described in this article pertain to home smokers. Details of the construction of a smoker and the preparation of the fish for smoking are included.

"Carp: Control and Utilization," by Nicholas J. Miller, article, Wisconsin Conservation Bulletin, May 1952, vol. 17, no. 5, pp. 3-7, illus., printed. Wisconsin Conservation Department, Madison 2, Wisconsin. This article describes the carp management program of the State of Wisconsin and the necessity of removal operations to prevent overabundance and resultant destruction of game-fish habitat. The Wisconsin Conservation Department is attempting to effect greater utilization of this resource through liberalizing the regulations permitting the taking of carp by spears and bow and arrow, as well as sponsoring cooperative removal projects with groups of sportsmen, and disseminating information on facts concerning carp and its utilization for food and sport. In addition, both contract fishermen and State crews continue to work together in removing carp from Wisconsin waters. Carp weighing 2½ pounds and over are generally sold for human food and those weighing less than 2½ pounds are canned at the Wisconsin Conservation Department's cannery and used to feed trout in hatcheries. Small carp are also sold to mink and fox ranchers for feed. The major portion of the carp production of 4,500,000 pounds for 1951 was used as food for human consumption and the wholesale proceeds to the fisherman derived from the sale of these fish amounted to \$265,000.

"Cleaning Losses in King and Silver Salmon," by Donald H. Fry, Jr., article, California Fish and Game, July 1952, vol. 38, no. 3, pp. 425-26, printed. Department of Fish and Game, San Fran-

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cisco, Calif. This report gives data on a study of the factors affecting cleaning losses in king and silver salmon, i.e., the loss in dressing the fish.

"Conflicting Interests in Marine Fisheries," by Nelson Marshall, article, Transactions of the Fourteenth North American Wildlife Conference, March 7, 8 and 9, 1949, pp. 429-40, printed. Wildlife Management Institute, Investment Bldg., Washington 5, D. C. (This article is contribution No. 29 from the Virginia Fisheries Laboratory, Gloucester Point, Va.) Discusses the controversies between conflicting interests in marine fisheries.

"The Decline of the Pacific Mackerel Fishery," by John E. Fitch, article, California Fish and Game, July 1952, vol. 38, no. 3, pp. 381-89, illus., printed. Department of Fish and Game, San Francisco, Calif. Describes the history of the Pacific mackerel (Pneumatophorus diego) fishery, its decline and attempts at regulation, and the future outlook for the Pacific mackerel. This report also discusses the age composition of the Southern California catch of Pacific mackerel, the mortality rates, and the story behind the catch.

"Designed for Fishery Research," article, Pacific Motor Boat, June 1952, vol. 44, no. 7, p. 30, illus., printed. Publication Office, 815 S. Witmer St., Los Angeles 17, Calif. Describes the new U. S. Fish and Wildlife Service vessel Charles H. Gilbert which was designed for fishery research. This vessel will operate in conjunction with the Pacific Oceanic Fishery Investigations out of Honolulu and is built to fish in the Japanese long-line manner. It is hoped by the researchers that this craft will be able to adapt to western mechanical standards a method of fishing which has been used for hundreds of years by the Japanese fishermen who operate more or less by hand.

Economic Aspects of Wildlife Resources of the State of Washington, by Robert F. Wallace, Economic and Business Studies Bulletin No. 19, 49 p., printed, \$1.00. State College of Washington, Pullman, Wash., February 1952. The subject of this bulletin is currently pertinent and fast becoming of increasing interest. More and more of the states are assaying the value of their wildlife resources. This has been done in the subject publication. Scientific and basically sound technical theory appears to have been used in the methodology of obtaining the information for the estimates. Questionnaires were used with detailed follow-up procedures. Both the commercial and sport fisheries are included in the estimates of expenditures as well as the wildlife resources used by hunters. For the State of Washington in the year 1950 an estimated \$100 million expenditure within the state for, or in connection with, wildlife is reported. No attempt is made to capitalize the value of this expenditure. The latter omission is fortunate. It indicates at least that the author has not committed himself through this publication to the premise that sport fishing and hunting are a productive factor in the economic sense. This whole field of estimating

the value of wildlife resources has many facets and probably will be debated far into the future. The present author uses method and logic which appear to be basically sound in arriving at one type of evaluation of the wildlife resources of his state.

--W. H. Stolting

"FAO Fisheries Statistics," Reprint from Monthly Bulletin of Agricultural Economics and Statistics, vol. 1, no. 2, pp. 3-7. Food and Agriculture Organization of the United Nations, Rome, Italy, June 1952. Statistics on fish landings in selected countries and statistics on production of certain fisheries commodities in selected countries are presented. Includes statistics available up to June 15, 1952.

(FAO) World War Against Want (The Work of FAO 1950/51), C51/21, 67 p., printed. Food and Agriculture Organization of the United Nations, Rome, Italy, 1951. This is a reprint of the Director-General's yearly progress report, prepared for the Sixth Session of the FAO Conference, which was held in Rome, November 19-December 7, 1951. Although it does not attempt to tell the complete story of FAO's activities and program, it does highlight the practical assistance designed to raise levels of nutrition and standards of living in its member countries by the increased production of food and forestry products. The field of FAO's activities, region by region and country by country, are surveyed. Described is the work being done to improve nutrition, to encourage the wise use and conservation of land, to reduce or eliminate animal and plant diseases, to save grain and other foods, to introduce modern methods of production, to encourage the adoption of wise forestry policies, to improve fishing practices, and to help governments to improve their statistical and other technical systems. The emphasis of the report is upon the practical assistance FAO is rendering to its member countries. Among the many projects reported upon are those on fisheries.

Food and Nutrition Services of Federal and Quasi-Official Agencies of the United States, HNHE-1163, 49 p., processed. Nutrition Programs Service, Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture, Washington 25, D. C., July 1952. This is the sixth edition of a publication on the food and nutrition services of the Federal and quasi-official agencies of the United States. The following agencies are concerned with the national nutrition program: Department of Agriculture, Department of Defense, Department of the Interior (Fish and Wildlife Service), Department of Labor, Atomic Energy Commission, Economic Stabilization Agency, Federal Security Agency, Federal Trade Commission, Veterans Administration, The American National Red Cross, and National Research Council. The activities and services of the various agencies concerned with food and nutrition are described.

"Harvesters of the Sea Reaping Co-op Benefits," by Jack Jennings, article, June 1952 News for Farmer Cooperatives, vol. 19, no. 3 (June 1952), pp. 11-

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

12, printed, 10 cents per issue. A general description of the activities of fishery cooperative associations in the United States, their growth in recent years, and some of their aims and objectives are given in this article. Much of the article is devoted to a description of the successful activities of two of the more outstanding organizations in this field. These two organizations are the Twin City Fishermen's Cooperative Association, Inc., and the Point Judith Fishermen's Cooperative Association, Inc. Technical descriptions are avoided by the author, easy and fast-moving style is used, and the article in general makes interesting reading. In addition, a few photographs of cooperative activities are shown.

--W. H. Stoltzing

"How to Make Life-like Model of Your Prize Catch," by Gustaf T. Sundstrom, article, Popular Homecraft, July-August 1952, vol. 22, no. 6, pp. 355-56, illus., printed, 35 cents per issue. General Publishing Co., Inc., 154 East Erie St., Chicago 11, Ill. Describes the simplest and most practical methods of making an artificial model of a fish. Instructions are given for making molds of plaster of Paris, rubber, and glue.

(Louisiana) Fourth Biennial Report, Department of Wild Life and Fisheries, 1950-1951, 486 p., illus., printed. Department of Wild Life and Fisheries, New Orleans, Louisiana. A report of the Department, its work and activities, covering the calendar years ending December 31, 1950, and December 31, 1951. Pertinent information on expenditures, income, licenses, violations, statistics, and reports from the several departmental divisions are presented. The report on fresh- and salt-water fisheries deals with revenue derived from and the value (estimated at \$110,000,000 to the State of Louisiana) of the commercial fishing and shrimping industries. The Gulf States Marine Fisheries Compact, dealing with commercial fishing, shrimping and oysters, which was signed in 1948 by the five Gulf states is given major consideration. Production of shrimp by the Gulf states and comments on the compact are shown in tabulated statistics. Also included are reports from the Division of Oysters and Water Bottoms, whose chief function is to insure the productivity of the oyster bottoms of the State; and the Division of Fish and Game, whose activities have been greatly enlarged for a continued effort towards restoration of the fish and game resources of the State of Louisiana.

Oystershell and Grit Supplements for All-Mash Poultry Feeds, by Charles A. Dupras, William Robinson, and Clarence S. Platt, Bulletin 762, 8 p., printed. New Jersey Agricultural Experiment Station, Rutgers University, New Brunswick, New Jersey, February 1952. This circular is a continuation of the studies initiated at Rutgers University some years ago to determine the value of various calcium-containing supplements and of insoluble grit in poultry feeds. "Results indicated no significant difference between the various supplements when measured by egg production, efficiency of feed consumption, mortality, eggshell

strength, hatching quality of eggs, or gain in weight of the fowls," state the authors.

"Range and Habitat of the Clam POLYMESODA CAROLINIANA (Bosc) in Virginia (Family CYCLADIDAE)," by Jay D. Andrews and Catherine Cook, article, Ecology, vol. 32, no. 4 (October 1951), pp. 758-60, illus., printed. Ecological Society of America and the Duke University Press, Box 6697, College Station, Durham, N. C. (This article is Contribution No. 35 from the Virginia Fisheries Laboratory, Gloucester Point, Va.) A description of the distribution and habitat of the clam, Polymesoda caroliniana, in Tidewater Virginia is presented. "Polymesoda is limited to slightly brackish waters and the family is a brackish to fresh-water transition group. The species now has a discontinuous distribution and extension of its range appears to be precluded by salt- and fresh-water barriers," according to the authors.

"Repeated Semiannual Spawning of Northern Oysters," by V. L. Loosanoff and H. C. Davis, article, Science, June 20, 1952, vol. 115, no. 2999, pp. 675-6, printed. American Association for the Advancement of Science at the Business Press, 10 McGovern Ave., Lancaster, Pa. Describes studies designed to determine whether the gonad development and spawning of the northern oyster, Crassostrea virginica, were of the exogenous type--initiated and regulated by periodical seasonal changes of environment--or of the endogenous type--controlled by a pattern confined within the organism itself. The experiments have shown that the processes of gonad development and spawning of these oysters are not of the endogenous type; i.e., there is nothing in their physical pattern that will not permit reproduction oftener than once a year, provided the ecological conditions are favorable for all aspects of the physiological activities involved in this complex process. The experiments have also demonstrated that the oysters, in developing gonads, showed no dependency on seasonal changes in such factors as light, tidal rhythm, precipitation, small variations in salinity, or other changes that usually occur during the spring and early summer when the gonads of oysters are rapidly developing. It has also been shown that gonad development of oysters is not dependent on certain types of plankton organisms that are present in the water only during the spring and summer, the time of normal gametogenesis and spawning.

"Report on Experiments Designed to Determine Effects of Underwater Explosions on Fish Life," by Carl L. Hubbs and Andreas B. Rechnitzer, article, California Fish and Game, July 1952, vol. 38, no. 3, pp. 333-66, illus., printed. Department of Fish and Game, San Francisco, Calif. This investigation arose from a conflict between different interests involved in the exploitation of the marine resources of California. Seismographic exploration for submarine oil had been suspended, through the revocation of licenses, because the explosions had destroyed large numbers of fish. The purpose of the study covered by this report was to determine if the explosives might not be handled in such a way, as through a reduction in the size of charge or through altered methods, that most of the danger of killing fish would be eliminated. Black-powder explosions proved to

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be relatively innocuous in a series of experiments, even with charges as high as 20 to 45 pounds, whether the charge was buried in the sediments, resting on the bottom, or suspended near the surface. Indications were obtained that black-powder discharges do not even drive fish away or prevent them from feeding. The evidence leads to the conclusion that exploration for oil can be continued without the undue destruction of fish life.

"Review of the California Sardine Fishery," by Frances N. Clark, article, California Fish and Game, July 1952, vol. 38, no. 3, pp. 367-80, illus., printed. Department of Fish and Game, San Francisco, Calif. This report reviews the California sardine fishery, and gives data on the seasonal catch (in tons) and utilization of sardines along the Pacific Coast from 1916-17 to 1951-52. It also includes information on the biology of the Pacific sardine (*Sardinops caerulea*), the present status of the population, and management of the Pacific Coast sardine fishery.

Review of Kenya Fisheries, 1950, by Hugh Copley, 55 p., printed. The Government Printer, Nairobi, Kenya. Reviews the Kenya fisheries for 1950, with special reference to the river fisheries, freshwater fish (coastal areas), a fish-culture farm, sea fisheries research and investigation, and the marine fisheries. The report on the marine fisheries discusses production, prices, marketing and distribution, and types of gear.

Scottish Sea Fisheries Statistical Tables for 1951, 109 p., printed, 4 s. net (about 56 U.S. cents). Scottish Home Department, 1952. (Available from Her Majesty's Stationery Office, Edinburgh, Scotland.) Statistics on the Scottish fisheries for the year 1951 are presented. Number, net tonnage, and value of different types of fishing vessels; types and value of gear; number of fishermen employed; and the amount and value of the fish catch by species and by areas and type of vessels, average prices, utilization of the catch, and fishery products exports are some of the statistical data included.

"Study of Nylon and Cotton Gill-Nets," by L. C. Hewson, article, Trade News, June 1952, vol. 4, no. 12, pp. 3-4, illus., processed. Department of Fisheries, Ottawa, Canada. An investigation conducted by the Central Fisheries Research Station of the Fisheries Research Board of Canada at Winnipeg to compare nylon and cotton gill nets during a routine study of the winter commercial fishery on Lake Winnipeg is described. In the 1950-51 season it was found that of all species of fish combined, the nylon nets caught 57 pounds

per 100 yards of net as compared with 17 pounds for the cotton nets—a ratio of about 3:1. A similar comparison of data from the 1951-52 season showed the nylon nets to be more efficient. Of all species of fish combined, the nylon nets caught 67 pounds per 100 yards as compared with 31 pounds in the cotton nets.

A Ten-Stone Controlled Fish-Smoking Kiln, by C. L. Cutting and A. Bannerman, Food Investigation Leaflet No. 14, 8 p., illus., printed, 9d. net (about 11 U.S. cents). Torrey Research Station, Department of Scientific and Industrial Research, Aberdeen, Scotland, 1951. (Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.) The general principles and main features of a small kiln, suitable for the small-scale production of smoked fish, are described and illustrated. This kiln possesses all the essential features which provide control, uniformity, and reproducibility of smoking and drying. About 140 pounds of fish can be smoked in this kiln in four hours.

"The Virginia Fisheries Laboratory," by J. L. McHugh and Robert L. Marble, article, The Commonwealth, December 1951, pp. 2-4, illus., printed. Virginia State Chamber of Commerce, 111 North 5th Street, Richmond 19, Virginia. (This article is Contribution No. 36 from the Virginia Fisheries Laboratory, Gloucester Point, Va.) In 1940 funds were provided by the Virginia legislature to establish the Virginia Fisheries Laboratory. The laws of Virginia describe the functions of the laboratory as follows: "The Fisheries Laboratory shall conduct studies and investigations covering the seafood industry as a whole, and shall make annual reports of its findings to the Commission of Fisheries; and shall, in addition thereto, make such special studies and investigations touching any part of the seafood industry as it may be requested to do by either the Commission of Fisheries, or the Governor of Virginia." Emphasis has been concentrated on investigations of four fisheries of major importance—the oyster, the blue crab, the croaker, and the shad. Considerable progress has been made toward an understanding of the habits and lives of these important sea foods, and of the effects of the fisheries and of natural and artificial conditions on their abundance. This article describes the activities of the Laboratory.

Washington State Shellfish, 7 p., printed. Washington State Department of Fisheries, 1308 Smith Tower, Seattle, Washington. The shellfish that thrive along the State's Pacific Ocean shore, the coastal harbors, and the inland waters of Puget Sound—oysters, razor clams, hard-shell clams, shrimp, and Dungeness crabs—are discussed.



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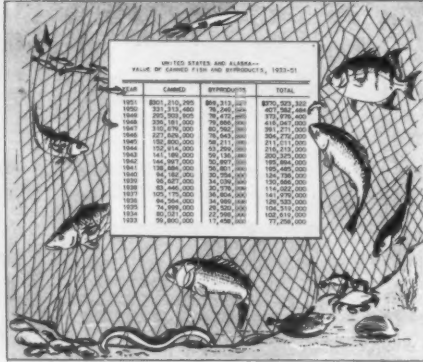
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CANNED FISH & BYPRODUCTS--1951

The 1951 pack of canned fish and shellfish and the production of byproducts for the United States and Alaska are given in the publication: Canned Fish & Byproducts--1951, C.F.S. No. 772. Among the detailed data presented are summaries of production by commodities (canned and byproducts) and by states, as well as the number of plants (by areas and states) engaged in the production of canned fishery products and byproducts.



Year	Canned	Byproducts	Total
1920	\$611,210,295	\$69,313,027	\$680,523,322
1921	537,113,480	75,240,244	612,353,724
1922	585,583,000	79,477,000	665,060,000
1923	535,211,000	70,000,000	605,211,000
1924	537,138,000	70,540,000	607,678,000
1925	532,800,000	68,211,000	601,011,000
1926	537,114,000	67,580,000	604,694,000
1927	541,400,000	65,135,000	606,535,000
1928	540,587,000	62,887,000	603,474,000
1929	548,000,000	64,100,000	612,100,000
1930	548,182,000	64,204,000	612,386,000
1931	548,000,000	64,100,000	612,100,000
1932	548,000,000	64,100,000	612,100,000
1933	548,000,000	64,100,000	612,100,000
1934	548,000,000	64,100,000	612,100,000
1935	548,000,000	64,100,000	612,100,000
1936	548,000,000	64,100,000	612,100,000
1937	548,000,000	64,100,000	612,100,000
1938	548,000,000	64,100,000	612,100,000
1939	548,000,000	64,100,000	612,100,000
1940	548,000,000	64,100,000	612,100,000
1941	548,000,000	64,100,000	612,100,000
1942	548,000,000	64,100,000	612,100,000
1943	548,000,000	64,100,000	612,100,000
1944	548,000,000	64,100,000	612,100,000
1945	548,000,000	64,100,000	612,100,000
1946	548,000,000	64,100,000	612,100,000
1947	548,000,000	64,100,000	612,100,000
1948	548,000,000	64,100,000	612,100,000
1949	548,000,000	64,100,000	612,100,000
1950	548,000,000	64,100,000	612,100,000
1951	548,000,000	64,100,000	612,100,000

Included in the canned fish and shellfish statistics are the packs of canned salmon, Maine sardines (including sea herring), California sardines (pilchards), alewives, tuna and tuna-like fish, mackerel, groundfish flakes, animal food from fishery products, fish roe and caviar, clams and clam products, crab meat, oysters, shrimp, and miscellaneous fishery products.

Byproducts data include the production of marine-animal scrap and meal, marine-animal oil, oyster-shell products, fresh-water mussel-

shell products, and marine pearl-shell buttons.

A table giving the imports of canned fishery products from 1947 through 1951 is also included, as well as historical statistics for packs of major canned products and the production of leading byproducts.

The pack of canned fishery products in the United States and Alaska in 1951 amounted to 800,514,575 pounds, valued at \$301,210,295 to the packers--a decrease of 17 percent in volume and 9 percent in value as compared with 1950. The 1951 production of fishery byproducts was valued at \$69,313,027--9 percent less than in the previous year.

Copies of C.F.S. No. 772 are available free upon request from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

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